MONOGRAPH

ON THE

LEATHER INDUSTRY

OF THE

PUNJAB

1891-92.

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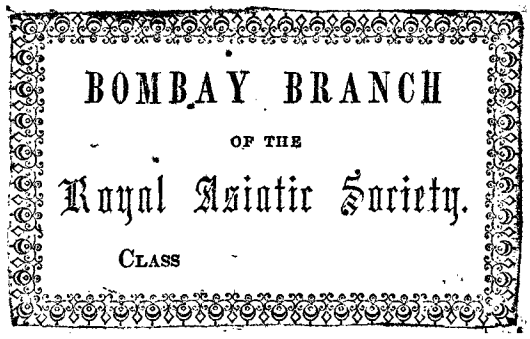

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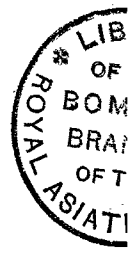

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1893.

No. 350 S.

FROM

J. M. DOUIE, ESQUIRE,
Offg. Revenue Secretary to Government,
Punjab and its Dependencies,

To

THE SENIOR SECRETARY TO FINANCIAL COMMISSIONER, PUNJAB.

Dated Simla, 3rd July 1893.

Revenue and Agriculture.

General.

SIR,

IN acknowledging the receipt of your letter No. 363, dated 22nd May 1893, I am directed to request the Financial Commissioner to convey to Mr. A. J. Grant, C. S., the thanks of Government for the excellent Monograph on the Leather Industry of the Punjab which he has compiled.

I have, &c.,
J. M. DOUIE,
Offg. Revenue Secretary to Government, Punjab.

Punjab Government Press, Lahore—1-8-93—356.

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No. 363.

FROM

M. W.. FENTON, ESQUIRE, C.S.,

Senior Secretary to Financial Commissioners, Punjab,

To

J. M. DOUIE, ESQUIRE, C.S.,

Officiating Revenue Secretary to Government, Punjab.

Dated LAHORE, *the 22nd May* 1893.

SIR,

I am directed to submit 350 copies of a Monograph on the Leather Industry of the Punjab compiled by Mr. A. J. Grant, C.S., Junior Secretary to the Financial Commissioners. The instructions for the preparation of the District Reports which furnished the materials for the compilation are contained in Financial Commissioner's Circular Letter No. 2293, dated 1st April 1892. Mr. Grant has, in the Financial Commissioner's opinion, done full justice to all the heads of the subject detailed in that letter, and has placed on record a mass of information concerning a widely diffused and important industry, which, though noticed in Mr. Baden-Powell's work on Punjab Manufactures, has never before been described in so exhaustive a manner. Dr. Watt's Dictionary of Economic Products of India, it is true, gives an account of the processes of manufacture carried on at the Government Tannery at Cawnpore, but the present account of the methods pursued by native leather-workers in this Province must be regarded as covering new ground. The figures of the census of 1891 have been made available for the purposes of this Monograph, which in the Financial Commissioner's opinion is equal in merit to that of any of its predecessors. The best of the district reports are those of Lieutenant R. M. Lowis (Shahpur), Kázi Muhammad Aslam Khan (Jhang), Surgeon-Captain H. Hendley (Peshawar), and Mr. Greenwood (Siálkot).

C. M. RIVAZ, Esquire.

2. In Part I of the Monograph Mr. Grant deals with the position in caste of leather-workers, their distribution and growth in numbers and their occupations other than that connected with the leather industry. As with other castes the process of emancipation from hereditary connection with a particular occupation is noticeable as a result of extended civilization. It is chiefly in agriculture that the Chamár, who discontinues his work in leather, engages. At present the Chamár may be said to be the agricultural labourer in the east of the Province, and from being the agricultural labourer he is gradually becoming first tenant and then owner of agricultural land. Part I also notices the trade in leather. The Punjab exports (net) from 2½ to 3½ lakhs worth of hides and skins each year, but the trade in manufactured leather is disproportionately small for the reason given in the Government of India Trade Review from which Mr. Grant quotes.

3. Part II of the Monograph contains a description of the various kinds of raw material and their cost, the processes of tanning and dressing and the various articles manufactured, while Part III is specially devoted to that important branch of the industry—the manufacture of shoes. In the processes of manufacture there are, no doubt, many directions in which improvement could be introduced. For instance, the large exports of sheep skins to Southern India to be treated by the superior processes in vogue there suggests the desirability of introducing the Madras methods into the Punjab. It is possible that improvements in manufacture will follow from the concentration of the trade noticed by Mr. Grant. Among manufactured articles of more than local celebrity may be mentioned the Peshawar " postíns " or sheep skin coats, the

ornamental leather-work of the Simla Hill States and the coloured leather of Gujrát which is used in upholstering the well-known Gujrát chairs. Articles in common use among agriculturists as well as shoes are made almost everywhere. A special industry in the hands of leather-workers of a special caste known as "Dabgars" is that of the manufacture from camel skins of "kupás" or leather jars often used for carrying ghi.

4. Perhaps the most interesting portion of Mr. Grant's Monograph is that in which he discusses the future prospects of the industry. The tendency towards concentration and wholesale operations, in so far as it accompanies and implies the decadence of the industry of the hereditary leather-workers of the village, has no doubt an injurious effect upon the latter class, but for the community at large and for the agricultural community especially any development which tends to cheapen the cost of production must be regarded as an economic gain.

I have, &c.,

M. W. FENTON,

Senior Secy. to the Finl. Commr., Punjab.

MONOGRAPH

ON THE

LEATHER INDUSTRY

OF THE

PUNJAB.

The following account of the leather industry of the Punjab has been compiled partly from District Reports on the subject submitted to the Financial Commissioners, partly from other sources such as Trade Reports of the Punjab and Settlement Reports and Gazetteers, supplemented to a small extent by personal enquiry. Part I of the Report deals with the position and prospects of the leather-working classes, the castes engaged and statistics of out-turn and trade. Very little of the information contained in this portion was obtained from the District Reports. Part II deals with leather itself, the process of tanning and the manufacture of leather articles. There are in addition two plates attached to the Monograph—the first showing the shape of some of the principal instruments used and articles manufactured; the second containing illustrations of different kinds of shoes.

PART I.

GENERAL—LEATHER-WORKING CLASSES—STATISTICS OF TRADE, &c.

Low estimation of the leather-working classes in ancient Hindu times.

1. The profession of working in leather, always unsavoury, is considered in India to be particularly unclean, and the persons engaged in this occupation have at all times in its history been looked down upon as a degraded class, in some cases actually outcast and excluded from participating with others in the rites of their nominal religion, and in other cases only admitted on sufferance to do so. Although it is impossible to trace with any certainty the origin and history of the class of leather-workers, still we can find out something as to their state and position in old times. At the period of the Institutes of Manu the rigidly exclusive principles of caste, as it became later on, were not yet established. There were, however, the divisions of the people into Brahman, Kshattriya and Vaisya (all pure Aryans), and the fourth class of Sudras which included aboriginal tribes and descendants of mixed marriages between the Aryans and the aborigines. In this four-fold division undoubtedly no one above the rank of a Sudra would have followed such a dirty and unpleasant occupation as working in leather. It is probable that the persons who actually undertook this kind of work belonged partly to aboriginal tribes and partly to the lowest class of descendants from mixed marriages. In the Institutes of Manu an attempt is made to trace the class of workers in each industry back to some particular hereditary origin. The class of 'káravaras' or leather-workers was held to be the issue of the mixed marriages of 'nishádas' with 'vaidihas,' thus representing a mixture of Brahman, Vaisya and Sudra. This derivation is of course merely fictitious, but it serves to show that leather-workers then, as now, belonged to a despised section of the community. Their humble descent and the degrading nature of their occupation combined to bring the 'káravaras' down to a very low position on the list of castes given in the Institutes of Manu, the only classes considered inferior to them being 'halálkhors,' 'chandáls,' sweepers, executioners, and 'cannibals.' In spite of their low rank, however, it is interesting to note that the annals of mediæval Hinduism afford an instance of a member of

this class being singled out for individual distinction in the faith. This was Rai Dás, a Chamár, who was chosen as one of the twelve disciples of Rámanand and is revered as such by the Rámanandi sect of the Vaishnavas, while the Raidásís called after him are still the principal division of the Chamár caste.

Position of Chamárs and Mochís in modern times.

2. After the time of Manu, the caste system became rigid and the leather-workers were stereotyped into a despised and outcast section of the community bound by blood and descent to a hereditary profession which was regarded as degraded and impure. Since then, however, caste organisation has again undergone great changes, and at the present time, though leather-workers continue to be looked upon as a low and menial class, still they share in common with all other ranks, in consequence of the relaxation of the rigidity of the old caste system, the possibility of raising themselves either individually or as a class to a higher position in the social scale. Caste was based at first upon the principle of community of blood. Then the principle of common occupation was recognised. Thus certain persons came to form a certain caste because they were engaged in the same occupation, not because they were of the same real or nominal descent. But there still remained the notion of the hereditary nature of occupation, and until this was done away with, and while it was thought that the son of a tanner must necessarily be also himself a tanner, the bounds fixed to castes were as rigid and immutable as under the old fictitious theory of common descent. Eventually this last idea of the heredity of occupation also became relaxed, and now it is possible within certain limits for individuals or whole castes by changing their occupation and manner of life to remove themselves gradually from one rank to another and improve their position in the community. In the case of leather-workers, however, there are other obstacles which stand in the way of any attempt to rise in social rank, and which are the more difficult to be overcome as they are connected with religious prejudices which are so powerful in the East. Chamárs are impure in the sight of Hindús because they eat the flesh of cows and dead animals and work in leather which is unclean; and the Sikhs, who are even stricter in their reverence for the cow than the Hindús, exclude them on the same grounds. But in spite of these difficulties the modern principle of the mutability of caste has extended even to the case of these classes. In the Punjab Census Report for 1881, Mr. Ibbetson says: "Among the artisan and menial tribes, the process (of changing occupation and with it caste) is common. One Chamár takes to weaving instead of leather-working and becomes a Chamár-Juláha; presently he will be a Juláha pure and simple; another does the same and becomes a Rangreta or a Bunia." The religious difficulty does not stand in the way nearly so much in the Western Punjab, and especially the North-West Frontier, where the population is Mussalmán, as it does in the East and South-East Punjab, where the people are nearly all Hindús. And it may be noticed that in some parts of the Frontier, as Dera Ismail Khán, leather-workers from down-country who have settled there have taken tone from their surroundings, and though they were originally Hindús have now nearly all become Mussalmáns. Changes in caste among Musalmáns represent little more than changes in social position, and are not accentuated by religious considerations. On this point Mr. Ibbetson writes:—"In fact the difference between a Pathán who took to weaving on the frontier and a Rájpút who took to weaving in the Delhi territory would be precisely that between caste in India and social standing in Europe. The degradation would not in the case of the former be ceremonial or religious, nor would it be hereditary, save in the sense that the children would be born in a lower condition of life; but the immediate and individual loss of position would be as real as among the strictest castes of the Hindús. Thus we find men on the frontier of all castes engaging from poverty or other necessity in all occupations except those of an actually degrading nature." It is, however, noticed in a report now received from the Kohát district that Patháns who have taken to leather-working, though they retain the name of Pathán, are not able to intermarry with other Patháns who have not been connected with a menial occupation of this kind. In all parts of the Punjab there is undoubtedly growing up the modern feeling of toleration which recognises prosperity and allows

respect to wealth wherever it may be found, and in Lahore and other places the heads of native firms of saddlers or shoe-makers, who are in a good way of business enjoy a considerable degree of social position. A native Extra Assistant Commissioner gives a fancy picture of the rise in the social scale of a Mochí's family in the Punjab. He becomes well-to-do and calls himself a Khoja: his son gets on well at school: so the father, besides leather articles, keeps in his shop other small things such as pens, paper, knives, &c., and the boy is called "son of a merchant": the son passes his examination and becomes a "sheikh": now the father drops shoes altogether and sells a better class of article or turns contractor: and the son finally gets himself called 'Khán Sáhib' and soon blossoms out into a 'Sayyid,' whose ancestors came from Afghánistán with Mahmúd of Ghazní, according to the Persian proverb:—

Sál-i-awwal sheikh búdam,
Sál-i-doyyam khán shudam,
Ghilla gar arzán, shawad
Imsál sayyid mishawam.

"The first year I was a 'Sheikh'; the second year I became a 'Khán'; this year if the price of provisions goes up I shall become a Sayyid." And there is a Punjábi proverb given as current in the Hoshiárpur district to the same effect:—

Pahle barase aur saur;
Phir muqbil-záde;
Haqq hamsáye margave:
Phir sayyid záde.

"First year something or other; then of respectable descent; when all his relations have died off, he makes himself out a Sayyid."

And among the rank and file of leather-workers also there are degrees in the social scale. Mochís who make shoes and other leather articles are superior to Chamárs and Khatíks who simply tan leather; and the Chandár Chamár will not eat or marry with the Jutia Chamár, because the latter works in the hides of impure animals; Khojas stand as high as, or higher than, Mochís; while Dabgars who make jars out of raw camel skin are the lowest of all in social position.

Relation of leather-workers to the rest of the community. Village menials.

3. The relation of the town and village leather-worker to the rest of the community is not always on the same footing. The workman in the town has always been an artisan pure and simple, buying his materials and selling his finished work in the open market. If he is a tanner he purchases his skins from skin-dealers (Khojas) or from butchers for cash and sells them when prepared to Mochís for working up into shoes or other leather articles; if he is a Mochí, he gets his tanned leather from the best and cheapest source and sells his manufactured goods to any purchaser. Village Chamárs and Mochís are on the other hand divided into two different classes, some working for their own hand as ordinary artisans, others in the position of servants of the village in which they reside. Those who are village menials differ from other artisans in that they occupy a recognised position in the village community, performing customary services and receiving customary dues, which almost invariably take the form of a fixed share or fixed amount of the produce. They are called 'kamín' or 'sepí,' (or, on the Frontier, 'olgí') and the dues which they receive in return for their services are known as their 'haqq sep' (in Kulu, 'jákú.') Of late years, however, the tendency has been towards independence and the modern ideas of free trade and competition are gradually breaking through the old restrictions fixed by long established usage. Thus the class of 'sepí' leather-workers is gradually dying out and the customary rule of the 'haqq sep' is being discarded in favour of the cash principles of ordinary business. In Ráwalpindi, Dera Ismail Khan and other districts some of the village workmen are independent artisans and some are village menials, but they are said to be mostly paid by the work done, and the former class is gradually absorbing and swamping the latter. In Siálkot and other districts it is noticed that the old system of customary work and dues does not apply

except to the mending of old leather articles, and that the tendency is to give new articles only on cash payment. In Gujránwála and Jhelum the 'sep' system is said to be dying out owing to the high price of grain. In Amballa it is noticed that "the 'kamín' system with Chamárs is becoming strained." In Kángra there is a modified 'sep' system; the leather-workers are village servants, but their dealings, though restricted to the community in which they reside, are carried on in cash, a fixed price of 12 annas to one rupee being paid by them for buffalo skins and a fixed price of 4 to 5 annas a pair being taken for shoes. In Amritsar village leather-workers do very little tanning themselves. They either cure skins roughly or else send them in to the city to be tanned, and the village Mochís for their work buy leather ready prepared in the city.

Rights and duties of the 'sepí.'

4. The duties and privileges of the 'sepí' leather-worker are by no means the same in all parts of the Province. As a rule they are entitled to have the skins of all animals dying a natural death, or to share them with the village sweepers in the proportion of 2 to 1 or half and half. But sometimes there is an arbitrary division which gives to village Chamárs all such skins, while in towns only the skins of buffaloes, cows, sheep and goats go to the Chamár, while the 'Chuhra' gets those of the camel, horse and donkey. But apart from their right to the skins of dead animals, 'sepís' also get a share or fixed amount of produce which varies very considerably in different districts. In some places their duties are more onerous and in consequence their rights more ample than in others. In the Settlement Report of the Rohtak district for example, the leather-workers who are village menials are divided into three classes, each with different duties and different rights. The duties of the first class (or those who are most completely bound to the service of the village community) consist in giving their help as required in every kind of house and field labour; in supplying shoes to the whole families of their patrons twice a year; and in providing cattle thongs, plough gear, headstalls for cattle, &c., as needed. They receive in return one-tenth of the whole crop, besides cash gifts of Re. 1 at the marriage of every boy, and of sums ranging from Re. 1 to Rs. 5 at the marriage of every girl in their patrons' families. The second class of 'sepís' have to assist as required in household work, to supply two pairs of shoes to each family every year and to provide whips, &c., as above. Their dues consist of one-twentieth share of the crop and the same presents at marriages as the first class. The third class in addition to assisting in household work are employed only in the mending of shoes and they get smaller dues—one-fortieth share of the crop and presents at marriages. These dues are in addition to the right of the 'sepí' to take the skins of dead animals, or to share such skins equally with the 'Chuhras' of the village. Other forms of 'sep' are for the 'sepís' to make shoes, weave cloth, and work as agricultural labourers, receiving in return one-twentieth share of the crops and rations of one or two 'rotís' daily on the days on which they work. In Jullundur the 'sepí' leather-workers are remunerated by being given one-fourth ser out of every maund of produce. In Mooltan they receive a lump sum per well. In Hoshiárpur, in return for agricultural labour and supplying shoes and cattle and well-gear, the "sepí" gets about one ser per maund of the produce, besides small cash fees at marriages and deaths. In Siálkot he either gets the cutting of the crops on a small portion of land or receives two or three sheaves and on the threshing-floor "pháka" (four or five sers of grain). In Jhang the Mochí is not considered a regular village menial as he is paid at harvest out of the grain heap and does not get a fixed share per well as do the 'kamíns' proper, potters, carpenters, blacksmiths and barbers. In Gujrát, in return for providing shoes for all landowners of the village, supplying whips and blinkers for their cattle and mending all leather-work, the 'sepí' gets at the spring harvest two sheaves per plough and two pái or sixteen sers of grain; and at the autumn harvest two sheaves per plough, and one pái or eight sers of grain. He is also allowed one cotton picking at the end of the season and one sugar boiling of 'gur'; and at the end of the sugar crushing he gets four 'tínds' or well-buckets of sugar-cane juice. Besides these, he receives small presents at marriages, funerals and festivals, and two-thirds of the skins of all deceased animals. In Siálkot the 'sepí' Chamár or Mochí has to provide blinkers and whips for the cattle and

to repair shoes, and in return he receives at each harvest a 'bharrí' or sheaf weighing about one maund for each house of the village, and a 'daropa' or about three sers from each heap of grain on the threshing-floor. In Gurdáspur the 'sepís' receive seven or eight maunds of produce per plough, and in this district many of them are holders of petty village service grants. In Lahore the dues consist of one maund of grain per well at the spring harvest and half a maund at the autumn harvest. These are half the rates which are paid to potters and carpenters, who are considered to do more useful work for the village community. In Montgomery they get two maunds of grain per well each year, one 'topa' per heap at each harvest, and one day's cotton picking during the season. In Hazára, the village leather-worker also gets certain grain dues, and is known as 'khální' or dependent on the threshing-floor ('khál'). In Montgomery the dues are three or four maunds per well and ten sers of uncleaned cotton. The work of Chamárs in Kulu is less onerous than in most places as the zamíndárs often make for themselves from untanned sheep or goat skin the universal grain receptacle ('borí' or 'khálrú'); and in Láhaul the profession of the leather-worker is still more restricted as no leather shoes are worn there.

Occupations of leather-workers apart from their own profession. Their connection with agriculture.

5. It will be noticed from the description in the preceding paragraph of the nature of the customary work of the 'sepi' Chamárs that they are employed on several kinds of duty quite distinct from the work of their own particular profession. In addition to working in leather many of this class, whether 'sepís' or not, eke out a living by such occupations as weaving blankets and coarse cotton cloth, plastering houses, fetching clay, &c.; and in Karnál and other parts of the Delhi Division they are described as "the coolies of the tract," who cut grass, carry wood, put up tents and do forced labour (begár) when such is required. But besides these occupations their principal source of livelihood apart from their profession is in connection with agriculture. Many of them own land or cultivate as tenants-at-will, and others work as hired labourers in the fields, either all the year round or in busy seasons only, at weeding, harrowing, threshing and winnowing. The extent to which the Chamár caste engages in occupations other than its own profession is shown by the figures of the 1891 census, in which less than one-third of all Chamárs and Mochís are returned as following the so-called predominant occupation of the caste. According to the Census Report of 1881, of the classes who combine agriculture with their more proper occupations, next after priests come carpenters, blacksmiths, weavers and leather-workers. It is especially the case in the districts of the Delhi Division and in the hills that Chamárs are engaged in occupations other than leather-working. In the Hissár Settlement Report, for instance, it is stated that many members of menial castes, and especially Chamárs, are also (*i.e.*, in addition to following their regular trade) agriculturists and cultivate plots of village land as tenants-at-will of the proprietors. And a later report from the same district adds that land is so plentiful there that many Chamárs have become ordinary cultivating tenants and have given up leather for agriculture. With regard to Gurgáon it is said that the 'kamíns' assist in field work at busy seasons everywhere, and in Rájpút and other villages where the women are secluded the cultivation is carried on almost exclusively by Chamárs. Passages such as the following occur in the Famine Report of 1879 with reference to more than one district of the Delhi Division. "It is customary for the agriculturists in this district to employ hired field labourers; they are generally employed in weeding and harvesting and receive two annas a day and one meal. The persons usually so employed are Chamárs, Dhánks, Ahírs and Kumhárs. They are not dependent on field labour only but earn their livelihood by handicrafts as well." "The holdings are usually so small that the people cannot afford to hire labour except at harvest time when Náis, Chamárs and such like are employed as reapers and receive as wages from 4 to 5 sers of grain daily." "The other tribes of landowners (*i.e.*, not Jats or Ahírs) and cultivators employ Chamárs, &c., to weed and reap their crop at a money wage of 2 annas per diem, given in cash, or kind, or both." With regard to the agricultural work of Chamárs in the hill districts, the Kángra Settlement Report says that in the neighbouring hills almost all menial castes occupy themselves very largely in field labour. The latest Kulu Report says that Chamárs own and cultivate land to a fairly large extent and are seldom dependent on their trade alone; while as to Simla it is stated

that "agriculturists in the hills largely employ hired field labourers. These get food and suits of clothes and Rs. 12 to Rs. 18 per annum in cash. They are taken mostly from the Chamár and other menial classes. When not employed on field labour they work on roads or buildings." On the frontier also it is noticed that the leather-working classes engage to some extent in agriculture. There is a special reason for this in Kohát and Bannu where nearly all the people wear sandals (chaplí or kherí) made from the leaves of the dwarf palm (mizrí). The leather-workers consequently lose what is the greater part of the occupation of their fellows elsewhere, *viz.*, the making of shoes; and they engage in agriculture or field labour to eke out their scanty means of subsistence. According to the census statistics the proportion of persons who combined the occupation of leather-working and agriculture to the whole number of persons engaged in agriculture was in 1881 1½ per cent., and in 1891 cultivating land-owners were nearly 3 per cent. and tenants nearly 5 per cent. It appears that the statistics were not calculated in quite the same way for the two years, and the difference ought not to be so large; but there seems to be little doubt that the number of the leather-working classes who are engaged in agriculture, either independently of or in addition to their own particular work, is considerably larger now than it was 10 years ago.

Subordinate castes among leather-workers—Chamrangs.

6. Besides the two main divisions of leather-workers into Chamár (Hindu) and Mochí (Mussalmán), there are several subordinate castes or sub-divisions. *Chamrangs* or 'tanners' can hardly be considered a separate class. The name is more properly speaking a purely occupational term applied to Chamárs and Mochís who are engaged exclusively in the tanning process. They either tan skins brought to them by zamíndárs to be prepared, taking a cash payment for their work in return, or else they purchase the hides, tan them and dispose of them to travelling hide merchants or to hide merchants established in large towns. They are mostly Mussalmáns.

Khatíks.

7. *Khatíks* are tanners of goat and sheep skins. They buy skins, principally of slaughtered animals, and tan them. The best leather they sell, and from the inferior leather they themselves make small articles such as sieves, small drums (daf), and timbrels. Many of them also keep pigs and fowls. The pig trade of the Eastern Punjab is mostly in their hands, and they supply fowls and eggs in large quantities to Simla and large cantonments. In the Amballa district they are said to deal only with skins of goats duly slaughtered (halál) and not with those of animals who have died a natural death (murdár). They are either Hindús or Mussalmáns. The numbers of this class in the census of 1881 were Hindús 8,389 or 71 per cent., Mussalmáns, 3,415 or 29 per cent. In 1891 the numbers were Hindú 9,568 or 65 per cent., Mussalmán 5,048 or 35 per cent.

Khojás.

8. *Khojás* are wholesale hide and skin merchants, who generally travel about the country and have various ways of making money. Sometimes they buy up skins from zamíndárs and sell them to Mochís in towns at a profit of about 1 anna per rupee. Or they advance money to butchers who are then bound over (often by a stamped agreement) to make over all skins to them; and these they sell to tanners in wholesale quantities. Or they buy tanned hides wholesale, make them over in retail to Mochís to whom they give at the same time an advance in money and whom they bind by agreement to prepare a certain number of shoes within a certain period. The shoes when made belong to the Khoja. The Khoja is to the Mochi what the Bania is to the agriculturist. He makes advances either in the shape of leather, or of money, or both, and often gets the leather-worker quite as hopelessly in his toils as the ordinary money-lender does the peasant. The numbers of this class at the census of 1881 were 61,297 and had swollen by 1891 to 89,023.

Dabgars.

9. *Dabgars* (or as they are sometimes called in Delhi *badgars*) are makers of thick leather jars ('kuppás') from camel-skin. They are the lowest in the social scale of all the leather-workers, perhaps owing to the nasty nature of their work which deals with raw skin and the fleshy underskin as described below in the paragraphs relating to

the tanning of camel skin and the manufacture of 'kuppás.' Their numbers are very small, being only 401 by the census of 1881 and 619 by that of 1891.

Chuhrás.

10. *Chuhrás* (the ordinary sweeper caste) have also a connection with skins and leather. In some districts (*e.g.*, Gujránwála) they take the skins of all animals which die a natural death, while in places where the population is Muhammadan it is a common rule for half the skins to go to Chuhrás and half to Mochís. In the Mánjha villages of the Lahore district in return for getting the skins of dead animals the Chuhrás have to do 'begár' work and to make thongs, cattle-blinkers, &c., for the zamíndárs as the Chamárs do in the Eastern Punjab.

Miscellaneous classes.

11. The remaining classes of leather-workers are comparatively small and unimportant, and are mostly persons who might have been included in one of the other classes, but have been recorded separately owing to some peculiar local designation. Such are *Raigars* who are found in Hissár, Delhi and Gurgáon. They are tanners of bulls' and buffalos' hides, and they prepare gut for the strings of musical instruments and other purposes. *Meghwál* is the name given to the Chamárs who came from the Bágar. *Keemukht-sáj*, or preparers of shagreen from donkey hides, have been distinguished as a separate class in Delhi. *Dágís* in Kulu as well as Chamárs take skins and clean, dry, and sell them. *Chorás* in Muzaffargarh make such articles as winnowing fans, small baskets (khárí), small musical instruments (rabána, dol). *Gandherá* is the special name given in Dera Ismail Khán and Dera Gházi Khán to such leather-workers as are employed particularly in repairing old shoes. In Pesháwar all persons having dealings with skins and leather are classified most minutely under different heads. Butchers (Kasáís) are divided into—

(1). '*Bakr Kasáís*' (killers of goats and sheep) who are again subdivided under the names of Lahorí, Bharochí and Awán.

(2). '*Gáo Kasáís*' (killers of bulls, &c.) who are subdivided into Lahorí and Peshawarí.

It is further stated that the two larger divisions of Kasáís do not intermarry with each other.

Census statistics of the numbers of Chamárs and Mochís in 1881 and 1891.

12. The figures below for the numbers of the Chamár and Mochí castes are taken from the census statistics of 1881 and 1891. In 1881 the Chamár caste numbered 801,995 out of a total population of 18,850,437 or not quite 5 per cent. Of the whole number of Chamárs 757,641 were Hindús, 36,323 Sikhs, 7,519 Mussalmáns and 509 Christians. The corresponding figures for 1891 were 891,065 Chamárs out of a total population of 20,866,847 or about 4½ per cent. Of these 809,412 were Hindús, 62,042 Sikhs, 19,533 Mussalmáns and only 78 Christians. The Mussalmán Chamárs who in 1881 were only 1 per cent. of the Hindu Chamárs had increased to 2½ per cent. in 1891. The Mochís in 1881 numbered 171,909 in all or not quite 1 per cent. of the total population, while in 1891 they had increased to 378,223 or nearly 2 per cent. As the proportion of Chamárs to the total population fell off during the same period, it may be concluded that the tendency has been for some Hindú leather-workers to become Mussalmáns and call themselves Mochís instead of Chamárs. As has been noticed before this is a process which has been gone through at some time or other in the case of a considerable number of down-country leather workers who have settled in frontier districts. Practically all Mochís are Muhammadans, a very small number being recorded as Sikhs or Hindús in the census years 1881 and 1891.

Unequal distribution of these castes over the different parts of the Province.

13. The distribution of leather-working classes is very unequal in the different districts of the Province, and the proportion borne by these classes to the rest of the population varies from 10 or 12 per cent. in the Delhi Division to 1 per cent. in the Deraját. They are most numerous of all in the Amballa district where the proportion of Chamárs to the rest of the population was 13 per cent. according to the census of 1891. In Hissár, Delhi and Karnál the proportion was about 9 per cent., while in all these districts the number returned as Mochís

was very small indeed. In Hoshiárpur Chamárs amounted to 12 per cent. of the total population and Mochís to something under 2 per cent., and in Jullundur Chamárs were 10 per cent. and Mochís 2 per cent. Coming to Lahore, however, it is found that Chamárs number only ·3 per cent. of the total population, while Mochís amount to 2 per cent. In Gujrát Chamárs are ·08 per cent., while Mochís come to 4½ per cent. Lastly, on the frontier, the total numbers of leather-workers—both Chamár and Mochí—are very small, ranging from Peshawar where Chamárs are ·7 per cent. and Mochís ·6 per cent. to Kohát where the Chamárs numbering ·4 per cent. and the Mochís ·6 per cent. together only amounted to 1 per cent. of the whole population.

Since writing the above I have been able to see the report on the census of 1891 from which I extract the following remarks :— "The large increase of Chamárs, however, in such tracts as Hissár, Amballa, Hoshiárpur, Jullundur and Patiála is accompanied by an increase, not a decrease, in the number of Mochís in the same districts; and the development of the caste is doubtless real, and due to its generally good physique and to its especial liability from poverty to vary in numbers according to the prosperity or adversity of the seasons. In Mooltán there is a remarkable decrease both of Mochís and Chamárs; in Hazára a decrease of Chamárs (1,338) is balanced by an increase of Mochís (3,083), and in Bannu an increase of Chamárs (2,033) is partially met by a decrease in Mochís (943). Of the lower Purbia castes the Khatíks (17,446) have increased 22·9 per cent., but are found as before mainly in the East. The facilities for marriage in the lower castes give them an especially strong recuperative force after a period of scarcity."

Statistics other than census figures.

14. Apart from the census figures, the following statistics have been furnished with regard to the persons employed in leather work of various kinds in the Amballa, Siálkot and Lahore districts :—

AMBALLA.

Process at which employed.	Castes employed.	Persons employed.			
		Men.	Women.	Children.	Total.
1. Cow and buffalo skin dressing ...	Chamár	3,342	1,642	70	5,054
2. Sheep and goat skin dressing and dyeing.	Khatík	209	80	20	309
3. Camel skin dressing	Dabgar	121	87	...	208
4. Leather selling	Mussalmáns	42	18	...	60
5. Shoe-making and manufacture of leather articles other than shoes	Chamár Mochi ...	2,293	1,650	80	4,023
	Mussalmán Mochi ...	197	97	23	317
6. Pakhál and mashk-making ...	Mussalmán Bhísti ...	2	...	...	2
	Total ...	6,206	3,574	193	9,973

Under class 1 are shown those Chamárs who combine shoe-making with tanning and they are not shown again under class 5. With reference to the last class it should be remembered that practically all 'bhístís' make their own pakháls, mashks and dols, but those only have been shown in the statement who make such articles for sale.

For the Siálkot district the following table shows the different branches of trade, the number and castes of the persons employed in each and the approximate value of the outturn :—

Branch of industry.	Caste engaged.	Number of workmen.				Estimated value of outturn.
		Men.	Women.	Children.	Total.	
						Rs.
(*a*). Preparation of hides and skins.	Chamrang Musalmán.	1,206	785	170	2,161	1,91,000
	Khatík Mussalmán	40	...	5	45	
(*b*). Shoe-making and manufacture of other leather articles except such as are connected with saddlery.	Mochi Mussalmán ...	4,359	2,809	485	7,653	9,24,000
	Chamár Hindu ...	675	470	90	1,235	
(*c*). Saddlery, harness-making, waist belts, &c.	Khojá, Kakazai, Mugal, Pathán, Mussalmán.	50	50	40	140	Not large.

For Lahore the following figures are given:—

	Factories.	*Employés.*
Tanners—		
Ox-hides	260	1,050
Goats' and sheep's skins	20	40
Shoe-makers—		
Native	485	
European	24	48
Saddlery—		
Country leather	20	60
English leather and harness.	18	53
Charsa-makers	2	5
Mashk, Boka, Sarnai makers	400	800
Kuppa-makers	1	6
Scabbard-makers	100	200
Huka „	100	200
Book-binders	75	150
Whip-makers	3	5
Total	1,508	4,147

External trade of the Punjáb in hides and skins and in leather.

15. The following tables show for the last six years the figures for weight and value of skins and hides and manufactured and unmanufactured leather imported and exported from and to the countries across the Punjáb border. It may be noted with regard to the imports that the trade with Kashmír in hides has more than doubled in the last three years, having increased from 5,084 maunds valued at Rs. 1,31,260 in 1889-90 to 11,632 maunds valued at Rs. 2,77,594 in 1891-92. The imports of hides from Bajaur are steadily falling off and those from Kábul increasing, but the traffic with these countries is of nothing like the same proportions as that with Kashmír. The value of the imports of sheep skins from Kashmír has in five years risen from $\frac{3}{4}$ lakh to about 2 lakhs; the Kábul imports from Rs. 10,000 to Rs. 40,000; and the Bajaur imports which in 1888-89 were non-existent amounted to over Rs. 50,000 in 1891-92. The exports of hides and skins are unimportant. The amount of unmanufactured leather yearly sent to Kábul is considerable and is increasing; manufactured leather to the value of about one lakh is also exported to the same country.

	1886-87.		1887-88.		1888-89.		1889-90.		1890-91.		1891-92.	
	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.
1. Hides of Cattle—												
Sewestán	615	6,860	697	7,380	679	8,191	1,066	15,308	910	14,443	722	10,906
Tírah	290	6,022	469	8,407	583	10,244	270	4,694	363	6,231	119	1,833
Kábul ... ... — ...	282	5,906	447	8,839	610	9,648	830	14,386	1,001	16,593	1,075	17,429
Bajaur	1,507	32,230	1,078	21,560	608	12,160	876	17,520	273	4,895	336	5,712
Kashmír	4,454	1,13,504	3,418	77,335	3,561	97,236	5,084	1,31,260	10,389	2,32,143	11,632	2,77,594
Total	7,148	1,64,522	6,109	1,23,521	6,041	1,37,479	8,126	1,83,168	12,936	2,74,305	13,884	3,13,474
2. Skins of Sheep, Goats, &c.—												
Sewestán	79	2,132	108	2,160	144	3,186	147	4,576	94	2,820	147	4,410
Tírah	22	530	21	616	5	61	92	1,831	78	1,572	73	1,436
Kábul	366	9,346	435	9,916	428	9,247	853	19,956	1,277	24,984	2,063	41,446
Bajaur	...	...	6	132	...	...	444	10,656	666	13,958	2,576	51,520
Kashmír	3,053	71,443	3,328	85,319	4,314	1,16,994	7,058	1,91,048	7,497	2,02,211	6,601	1,78,931
Ladákh	...	...	...	...	9	405	15	675	...	...	5	225
Total	3,520	83,451	3,898	98,143	4,900	1,29,893	8,609	2,28,742	9,612	2,45,545	11,465	2,77,968

EXPORTS.

	1886-87.		1887-88.		1888-89.		1889-90.		1890-91.		1891-92.	
	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.	Maunds.	Value, Rs.
1. HIDES OF CATTLE—												
Sewestán	119	2,670	160	2,810	194	3,450	160	3,586	114	2,344	105	2,100
Kábul	157	3,352	847	16,940	383	7,660	86	1,720	25	475	90	1,530
Kashmír	92	2,136	74	1,776	1	25	14	364	...	...	18	396
Total	368	8,158	1,081	21,526	578	11,135	260	5,670	139	2,819	213	4,026
2. SKINS OF SHEEP AND GOATS—												
Kábul	255	6,474	345	8,853	264	6,336	233	5,592	210	4,490	30	600
Kashmír	23	600	34	855	6	150	...	...	47	1,430	32	896
Ladákh	100	6,120	150	7,365	211	10,520	80	3,600	4	795	...	...
Total	378	13,194	529	17,073	481	17,006	313	9,192	261	6,715	62	1,496
3. LEATHER, UNMANUFACTURED—												
Sewestán	5	80	3	50	...	...	...	...	...	...	...	...
Kábul	96	3,523	472	18,322	69	2,108	268	7,906	30	1,200	1,072	30,848
Kashmír	158	4,365	395	20,593	380	14,943	410	28,283	439	24,223	35	12,360
Thibet	35	1,400	20	800	78	3,120	12	480	20	800	26	1,300
Total	294	9,368	890	39,765	527	20,171	690	36,669	489	26,223	1,133	44,508
4. LEATHER, MANUFACTURED—												
Sewestán	132	4,715	32	1,140	119	5,510	115	4,165	24	1,455	49	2,374
Kábul	960	89,098	1,386	1,17,520	1,509	93,380	2,134	1,66,832	1,628	1,20,600	1,654	1,27,900
Kashmír	67	4,000	139	8,400	267	11,636	112	8,047	29	3,460	72	7,260
Thibet	14	700	8	400	3	150	2	100	10	460	4	240
Total	1,173	98,513	1,565	1,27,460	1,898	1,10,676	2,363	1,79,204	1,691	1,25,975	1,779	1,37,774

Internal trade.

16. The table given below shows the total figures for internal trade of the Punjáb with other parts of India during the last three years :—

	1889-90.		1890-91.		1891-92.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Dressed hides	179,056	351,432	153,637	252,296	64,541	865,898
Raw hides	368,972	362,780	258,141	363,834	234,228	540,540
Dressed skins	94,129	1,283,300	63,989	1,695,928	58,266	1286,910
Raw skins	141,056	1,137,074	123,081	805,105	193,726	1,326,782
Total	783,213	3,134,586	598,848	3,117,163	550,761	4,020,130
Manufactured Leather	804,337	871,024	820,209	2,041,050	1,166,284	2,033,700

Some remarks may be made as to the particular tracts of the Punjáb and Provinces of India between which the internal trade of 1891-92 was carried on. Nearly the whole of the dressed cattle hides exported were sent to Calcutta, two-thirds of the whole amount coming from Delhi city. The exports of raw hides were principally to Karáchi, the North-Western Provinces coming next. Those sent to Karáchi came from the central portion of the Punjáb including the trade centres of Lahore, Amritsar, Siálkot, Hoshiárpur and Jullundur. Of the exports of dressed sheep skins, Mysore and Calcutta took the largest quantity, being followed by Madras Sea-Ports and the Madras Presidency. The great majority of raw sheep skins exported went to the North-Western Provinces. Turning to manufactured leather the imports were almost entirely from the North-Western Provinces, but though they were mostly to the eastern and central part of the Punjáb, very little was taken by Delhi city itself. The exports of manufactured leather were taken principally by Calcutta, Bengal, North-Western Provinces, Sindh and Karáchi in the order named. The following remarks are taken from the Review of the Inland Trade of India for 1888-89 :—

"Having regard to the consumption of so large a population as that of India, the inland trade in leather manufactures, valued at 83 lakhs of rupees in 1888-89, seems altogether disproportionately small. The apparent discrepancy is, however, readily accounted for by the communal institution of the people. Each village has its own workers in leather, who are also, to a large extent, their own tanners : and it is part of their recognised duties to keep their patrons in boots and to cure and make up the hides required for the leather buckets made for irrigation. The needs of the agricultural population being thus locally supplied without the intervention of traders, the traffic is practically restricted to the demands of the city classes and the requirements of the army."

In this connection the figures given in the following paragraph for the consumption of prepared leather in the Jullundur district are of interest. It will be seen that while the total consumption is estimated at a value of Rs. 3,23,038, the leather actually prepared in the district (which is in no way particularly noted for its leather work) is estimated to be worth Rs. 3,44,602. Only Rs. 1,06,366 worth passed outside the district at all, and even of this only that portion which happened to be imported or exported by rail would appear in the statistics of Internal Trade.

Statistics of the leather trade of certain districts.

17. Besides the trade statistics shown above, figures have been given in the case of a few districts for the amount of leather annually imported and exported and made up in the district from raw material. The figures are given for what they are worth, but it is impossible to guarantee the accuracy of the calculations from which they have been derived. Imports into the Siálkot district from Kashmír and Jammu, Pesháwar, Dera Ismail Khán, Mooltán, Hoshiárpur, Sháhpur, Gujránwála and

Ráwalpindi are estimated to amount to Rs. 1,86,000 *per annum*, of which buffalo hides account for Rs. 26,000, ox hides Rs. 95,000, sheep skins Rs. 30,000 and goat skins Rs. 35,000. The value of the hides worked up yearly in the Hazára district is put at Rs. 50,000. The value of the leather articles manufactured in the same district each year is estimated as under:—

Shoes, Rs. 1,50,000; saddles, Rs. 1,000; 'shináz,' Rs. 2,000; charpoys Rs. 2,000; kuppás, Rs. 2,000; miscellaneous, Rs. 4,000.

For the Jullundur district the following figures are given :—

	Rs.
Value of raw hides and skins skinned in the district	1,94,235
Value of raw hides and skins imported from other districts ...	1,49,598
Total	3,43,833
Value of raw hides and skins exported	1,44,828
Balance for local consumption	1,99,005

The figures for prepared leather in the same district are—

	Rs.
Leather prepared in the district	3,44,602
Leather imported from other districts	42,401
Total	3,87,003
Leather exported	63,965
Balance leather consumed locally	3,23,038

Pesháwar has a very considerable import trade from Kábul, Tíráh, Swát and Bajaur. From Kábul come mostly postíns, kamarbands, and furs of various sorts; from the other countries the imports consist chiefly of sheep and goat skins. The exports from some districts are considerable both across the frontier and down country. The value of the hides of bullocks and cows killed in Commissariat and other slaughter-houses and exported from the Siálkot district to Calcutta for the foreign market is said to amount annually to Rs. 1,60,000, and the exports were formerly on a still more extensive scale. These hides are sent unprepared and are known as 'kamela.' There are two fairly large establishments in the Delhi city at which skins are tanned and exported to Madras and Bombay. From Amritsar 100,000 skins are sent yearly to Madras alone, and there are also large exports of cured skins from this district to Kandahár and to Dera Ismail Khán and other frontier districts. On the other hand a lot of salted skins are brought by Khojas from Dera Ismail Khán to Amritsar and Mooltán for tanning. Skins sent from Amritsar to Madras are by the custom of the trade packed in bags of 51 each, 2 in each 100 being allowed for tainted or imperfect ones. Dried skins are sent in bundles of 105, allowing a small percentage for any which may be worm-eaten or in any way useless. These large exports to Madras are accounted for by the fact that South Indian skins have a better reputation and are said to fetch a much higher price in European and American markets than those shipped from other ports in India. The superiority of the Madras article is partly due to the fine quality of the bark used for taning it (*cassia auriculata*) and partly to the superior methods of manipulation.

Prospects of leather-workers in the Punjáb.

18. On the whole the prospects of the leather-worker in the Punjáb seem far from bright. The spread of the competitive principles of free trade and the opening up of communications which enable consumers to obtain their dressed leather or their manufactured leather articles more cheaply from one of the great leather-working centres like Cawnpore have fatally injured the industry of the local hereditary leather-working classes. It has been seen that the old customary system of the 'sep' is fast dying out, and, directly open competition and payment by cash comes in, the crude and imperfect work of the local Chamár has no chance in the market, even in the point of cheapness, with the work turned out by large and well managed tanneries and leather factories. Under the 'sep' system the leather-worker shared in the fortunes

of the agricultural community to which he belonged; now the interests of the two are becoming antagonistic as those of producer and consumer must ordinarily be. The rise in prices and specially in the price of food has also very injuriously affected these classes. They tell doubly against them, for the zamíndárs, their best and in agricultural communities practically their only customers, find themselves obliged to economise and haggle over every pice they spend, while the money itself has not the same purchasing power. The class of middlemen also is gradually coming more into prominence and absorbing its share of what were always only too slender profits. The Khojás and their relation to leather-workers have been already referred to. They advance money or money and material, to Mochís who are in difficulties, and buy up the whole work of their borrowers for a certain period. The result, of course, is that the Mochi gets more and more involved in their meshes and finds it utterly impossible to extricate himself from their hands. Those who work for wages are no better off. They get either the same or less wages than they used, and as prices have gone up the food equivalent is always smaller than before. Everywhere the complaint is the same. Native saddle-makers did a thriving business in Sikh times, but there is little demand now for costly horse trappings and the cheap saddle from Cawnpore and Meerut has almost destroyed the local saddle-maker's business Towns, such as Kálanaur in Rohtak and Bhiwáni in Hissár, which formerly did a flourishing leather trade, have now sadly fallen-off in prosperity. In former times many of the native cavalry got their bridles and other equipment from these places, but they again have been driven out of the market by the Cawnpore factories. And lastly the introduction of patent leather-shoes by the Bengálí Babu community and the spread of their use among other town classes, though it may seem a small thing, has also contributed towards the decay of the native industry. Some Mochís have taken to making patent leather shoes, but they are inferior to the imported article, and the latter is so cheap that it leaves no margin for successful competition

PART II.

LEATHER—PREPARATION AND MANUFACTURE.

Definition of leather.

19. "Leather consists of hides and skins of certain animals, separated from fleshy and fatty matters and prepared by means of chemical agents in such a way that they resist the influences to which they are naturally subject. Skins in their fresh state are tough, flexible, and apparently well suited for clothing, &c., but on drying they become hard, horny, pervious to water and finally putrid. These changes are prevented by the processes of the leather manufacturer, and at the same time the skin is rendered stronger, more impermeable to water, more supple and less likely to be affected by wear and tear. The final result of the processes ordinarily employed is a chemical combination of certain constituents of the skin with tannin." (Watt's Dictionary of Economic Products of India).

Kind of skins used for tanning.

20. The skins ordinarily used for tanning in the Punjáb are those of the buffalo, bull or cow, sheep and goat. Besides these the skins of horses, asses and camels are sometimes worked up; and in special parts the skins of other animals also, such as the wild cat, fox, snow leopard, grey and brown squirrel, jackal, bear, karth, gural and barking deer, are occasionally made use of.

Buffalo hide.

21. Buffalo hide is most esteemed for its strength. It is very durable, but is too thick and stiff to be suitable for all kinds of work. It is most used for the thick soles of country-made shoes and together with ox hide is also employed in harness-making and saddlery, in the manufacture of huqás, khopás, nárás, tobras, charsahs, petís, bokas, &c. The special names for buffalo hide are 'mája' and 'mánjha' and the skins of buffalos and oxen are called "charsah" or 'adhaurí' ('dhaurí') according as they are whole skins or divided down the middle. Buffalo hides raw cost between Rs. 4 and Rs 6, and when dressed they are worth from Rs. 5 to Rs. 7. When sold by weight the raw hides fetch from Rs. 10 to Rs. 18 per maund, the price being less in the hot than in the cold weather as the tanning is not then so certain. The following passage is extracted from a note on the Cawnpore Government Tannery:—

"Buffalo is the only available hide that will produce leather thick enough for harness work in this country; but there is no doubt that much of the inferiority of country leather arises from the poorness of the skin of that beast. It is poorly fed, not generally cared for, and usually killed when too old to breed or give milk. The hide of the male buffalo is too coarse and it gets such bad treatment in the plough or cart that it is generally full of sores and goadmarks. In large towns there is a market for buffalo beef for the low caste and poorer Mussalmán population, and also for grease, but the younger and better cattle are rarely slaughtered; it is from these slaughtered animals that the local tanners select their hides for the finer uses of harness, saddlery and accoutrements. Many good hides are ruined by the butchers in flaying from inefficient arrangements in the slaughter houses and from injudicious use of their tools."

Bulls' and cows' hide.

22. The skins of bulls and cows are called 'goká.' The leather made from them is not quite so strong as buffalo hide leather, but is stout enough for most purposes. Raw skins of this kind fetch from Rs. 2 to Rs. 5, being on the whole slightly less valuable than buffalo skins. Dressed they are worth from Rs. 3 to Rs. 6 each. There is sometimes a distinction made between the skins of bulls and cows, the former being considered tougher and rather more valuable. This class of hides is much exported to England and extensively used there for boot and shoe upper leather for which it is much esteemed. Much damage is done to the hides by branding on the butts and shoulders.

Sheep and goat skins.

23. Sheep skins are called 'meshá' and goat skins 'khal,' or together they go under the generic term of 'nárí.' The leather made from them is much finer and more supple than that from buffaloes' and bulls' hide, and is used for such purposes as making uppers of

shoes, covering boxes and wicker work baskets, making bellows, stockings, gaiters and book binding. Goat leather is esteemed much the more highly of the two as it is stronger and more durable. Sheep and goat skins are bought up largely from village butchers and sweepers by the Khatíks who, as already noticed, are a special class whose occupation consists in the tanning of these kinds of skins. They are also sold in considerable quantities by butchers to merchants from Delhi who purchase them for the home market. The value of a raw sheep skin is from 6 annas to 12 annas and when tanned they fetch only from 8 annas to one rupee each. Goat skins are worth from 10 annas to 1½ rupees raw, and from Rs. 1 to Rs. 2 when dressed. In Láhaul where sheep are very plentiful a prepared sheep skin is worth only 4 annas.

Cost of skins in the Mooltán district.

24. The following figures are given in the report received from Mooltán of the price per maund of raw skins, their cost price when tanned, the cost of tanning and the profit to the tanner.

	Raw skins.			Tanned skins.			Cost of tanning.			Profit.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Buffalo	20	0	0	35	0	0	10	0	0	5	0	0
Cow	12	0	0	23	15	0	7	3	0	4	12	0
Sheep (per 20 skins)... ...	9	0	0	13	13	0	3	13	0	1	0	0
Goat (ditto)	15	0	0	19	13	0	3	13	0	1	0	0
Camel (per maund)	5	8	0	10	0	0	*Nil.*			4	8	0

Other kinds of skins.

25. Of the other skins which are less commonly used *camel* skins are employed principally for making 'kuppás,' stout leathern jars, or for patching up holes and weak spots in other kinds of hides. For this purpose they are not regularly tanned. The preparation of these skins and the method of manufacture of the 'kuppás' are described in later paragraphs. The skins are worth from Rs. 1-8 to Rs. 3 only. They are also exported from some districts of the Punjáb to Lahore and Amritsar where they are said to be used for packing tea exported for the Central Asian market. *Horses'* skins are said to yield a very thin and weak leather and are very seldom worth the trouble of tanning. They are worth from Rs. 1 to Rs. 2 only in their raw state. *Asses'* skins fetch from 8 annas to 1 rupee when raw. They are seldom tanned locally, but are sometimes sent to Delhi and Pesháwar where they are made into shagreen (kímukht), an account of the process of manufacture of which is given below. *Deer skins* are worth from 6 to 8 annas; *leopard* and *bear* skins from Kulu and Kángra about Rs. 2-8 and Rs. 1-8 respectively; *barking deer* about Rs. 2; *gural* Rs. 2; and *karth* Rs. 3. These latter all come from Kulu. In Pesháwar are to be had *wild cat* skins (known as 'soghar' and 'samor'), and *fox* skins (sháhzáda), many of which come from Russia. Here also *snow leopard* skins and skins of the grey and brown *squirrel* are sometimes brought in from Kábul. *Foxes'* and *jackals'* skins are sent in some quantities from Ráwalpindi to Pesháwar to be dressed there. Scented "Russia leather" is also to be obtained at Pesháwar at a price of Rs. 20 to 30 per skin, but it is not a local product.

Method of skinning practised for buffaloes and bulls.

26. The skinning of animals is generally performed by the butcher if they are slaughtered for food, and by the sweeper if they die a natural death. The method of skinning practised in the Punjáb is as follows in the case of buffaloes or oxen. The carcase is first laid on the ground on its back, its legs are then held up and the hocks and hoofs are removed. A slit is then made in the skin along the full length from the mouth to the tail; the skin on the inside of the hind-legs is also slit down to the root of the tail and the skin of the fore-legs to the chest. The skin is then removed with a knife. When it has all been taken off one side the carcase is turned over and the skin of the other side is removed. The hide is then spread out on the ground and rubbed with salt, wood ashes or "kalar" (saline efflorescence). It is then left to dry for a couple of days, being put in the sun in

the cold weather and in the shade in the hot weather. The dried skins are then rolled up in bundles and put away in that state for sale or for future tanning. Sometimes, when the salt has been rubbed in, the skin is laid out flat on the ground and a board ("chaukat") placed upon it so that the edges of the skin project all round. In these projecting portions of the hide holes are made and a leather rope being passed through them the skin is laced up tight on to the board. The board with the skin on it is then stuck up against a wall or some such place to dry.

For sheep and goats.

27. In the case of sheep and goat skins the method of skinning is first to remove the head and hang up by the hind legs to a convenient tree or a prepared tripod; slit open the skin on the inside of the hind legs to the root of the tail; then draw the skin off whole, the hand alone (not a knife) being used to separate the skin from the flesh. A distinction is sometimes made between skins which have been removed by butchers and those taken off by village sweepers or Chamárs, the former being called 'qassábí' and the latter 'gánwárí.'

Process of tanning bull and buffalo hide.

28. The process of tanning the different kinds of skins varies considerably and a separate description of the methods employed in each case is necessary. The general features of the system of tanning bull and buffalo hide are similar all over the Province, but slight variations of treatment occur in some districts, mostly owing either to the presence locally of some particular product which has been found useful for tanning purposes and which is not available elsewhere, or else to the difficulty of procuring some of the ordinary materials for tanning as used in other districts. There are a large number of distinct processes in tanning a skin of this class, each of which will be described separately.

First and second processes.

29. The first process is to steep the skin in water (generally in a village pond or 'chappar') for about twelve hours to soften the skin. This helps also to remove the salt if the skin is one which has been dried and salted and is not taken 'green' from the slaughter-house. It is then soaked in a vat, [called 'baingar' (Siálkot), 'vegar' (Ráwalpindi), 'nánd' (Rohtak)] containing generally a solution of lime and 'sajjí' (carbonate of soda). For 'sajjí,' 'reh' or saline efflorescence is sometimes substituted. It remains in this solution for some days to loosen the hair and to soften the surface of the skin and should not be taken out until the skin becomes 'plumped up' and begins to be covered with a white fungoid growth, or as the natives say until it becomes 'khamír' or ferments.

Third process.

30. It is then taken out of this solution and the third process is to remove with a 'fleshing knife' ('rambí,' 'ránpí,' 'khurpí'), the fat and inner skin ('jhillí', 'gadúd', 'chichra'). The outer hair is also taken off either with the same scraper or with a potsherd ('tikrí') or piece of nitrified brick ('jhánwa'). The inner skin and fat which is removed is generally wasted though it is sometimes employed as manure. It is never made use of in the Punjab for glue as is done in England. Some dexterity is needed in removing the inner flesh as the knife used has a sharpened edge and a slip may shave too deep and cut into the hide.

Fourth process.

31. The fourth process is to steep the skin, after being cleaned and scraped, in another vat ('nánd,' 'malní,' 'kún') containing the bark of the 'kíkar' or 'bábul' tree (*Acacia arabica*). In the Hazára district the bark of the 'chir' (*Pinus longifolid*) is substituted for 'kíkar' bark. Another variation also practised in the Hazára district is to substitute the leaves of the 'amla' (*Emblica officinalis*) or the root of the 'ber' (*Zizyphus jujuba*). The skin remains in this solution for three or four days. In the Gujránwála district, between the third and fourth processes as just described, there is an intermediate process which consists of steeping the skin in water mixed with leaves of the 'madár' (*Callotropis gigantia*) and 'pharwán' tree in order to remove all traces of the 'sajji' and lime. This fourth process is repeated three times, the skin being wrung thoroughly dry between each steeping and then placed in a fresh solution. The usual method of wringing the skin dry is to place it round a thick forked branch firmly embedded in the ground (called 'kasn'), and then twist it tightly with a stick so as to squeeze out all the

moisture. These operations which are gone through in order to remove all traces of lime from the skin correspond to the English process of 'bating.' The use of lime in tanning is generally considered to be an evil, but a necessary one; it is not good for leather, but the hair and flesh must be removed, and there is no safer way of doing so. The plan of sweating the hides and producing partial decomposition which is adopted in some places would be too dangerous in a climate like that of India. After lime has done its work all traces of it in the texture of the hide have to be rapidly obliterated, and the process whereby this is effected in the English method is called "bating," the hides being thrown into a "grainer" in which bran and water have fermented. The various mixtures described above as used for this fourth process take the place of this "grainer."

Fifth process.

32. The skin after the third bath as above is washed, and then comes the fifth process. The skin is sewn up with 'munj' string in the shape of a sack and hung up on a tripod ('chará,' 'trikálí') head downwards over a vat ('kún,' 'charáí'). The interior is then filled with the bark of the 'kíkar' tree (*Acacia arabica*) chopped fine, and water is poured on both inside and outside the skin. The mixture of water and bark is sometimes known as 'atúra' or 'tarsa.' After some time (generally a period of about twelve hours) during which the skin has been kept constantly wetted, fresh water being poured in from the top as the old water trickles through the pores into the vat below, the skin is reversed in position, the opening which was at the top being sewn up and a fresh small opening made in what is now the upper part of the skin-sack. The same process as before is now repeated and this goes on for two or more days till the tannin has thoroughly penetrated the skin all over. During this watering process the same water is used over and over again, being taken up from the vat below as it drops into it. By this treatment the tannin goes right through the hide, but it has not time to make the chemical combination which according to English ideas is considered so essential for the leather. Tanning done in India on the English methods takes nine months to a year for a buffalo hide, four to six months for cow hides, and one to two months for sheep and goat skins.

Variations of the fifth process.

33. The above is a description of this process as generally practised, but there are many local variations and modifications of it in particular districts. In Hissár the skin-sack is first hung cross-wise between two beams and filled with bark and water while in that position and afterwards taken down and hung length-wise. In Kángra green oak leaves are substituted for the 'kíkar' bark, and in Kulu the bark of the oak or 'rai' (Himalayan spruce, *Abies smithiana*) is made use of. In the Biláspur State the dried and powdered leaves of 'chhall' (*Conocarpus latifolia*) and 'amla' (*Emblica officinalis*) are employed. In Amballa also the same 'chhall' which is a kind of hill grass is used mixed with 'kíkar' bark. In Ráwalpindi 'malla' (*Zizyphus nummularia*) or 'ber' (*Zizyphus jujuba*) and in Hazára 'chir' (*Pinus longifolia*) are substituted for 'kíkar' bark. In Pesháwar several different kinds of tanning ingredients are used according to the colour which the finished skin is to be. For green skins 'kachmár' is used, for yellow skins the bark of the root of 'sen' or 'prach', for dark yellow skins pomegranate peel, and 'kíkar' bark is only employed for those which it is wished to keep of a reddish colour. The operations of pulverising the bark and pouring water over and into the hide-sacks are the only parts of the tanning process in which women are able to assist.

Tanning agents used at the Government Tannery, Cawnpore.

34. The following quotation is taken from a note on the methods pursued at the Government Tannery, Cawnpore:—

"'Bábul' bark is obtained locally. The bark season extends from January to June, that is, the spring of the year when the sap is up on the trees; from six to ten year old trees are the best for bark. The bark should be peeled from the trees immediately they are cut down. The natives are rather careless in this particular and greatly injure the bark, for, to get it separated form the wood, they beat it with wooden mallets and gash it about to get it loose; they then peel it off by hand; each gash is a wound in the bark through which the tannin escapes. InEngland a peeling iron is used and long strips of bark are

taken off without any beating, but of course this must be done before the sap has dried. The tannin is contained in the white or inner stratum of the bark. The tannin is stronger in 'bábul' than in oak bark, but the quality is not considered so good. Experiments tried in England proved 'bábul' to have keeping qualities quite equal to oak bark if not superior; it is thus a valuable tanning agent. But it has more colouring matter, that is, it gives a reddish liquor, and this is somewhat against it; but a great advantage is found from mixing with it 'hurr' or 'bahaira' (the myrobolam of commerce—the dried fruit of *terminalia chebula*) which is plentiful in the market and is used extensively as a dye. The liquor from the 'hurr' is a powerful tan, and though it is not reported to be of a quality that would make good leather of itself, it is highly esteemed in England to mix with other tanning agents, owing to the bright colour it imparts; and herein is its usefulness in combination with 'bábul.'"

Sixth and seventh processes.

35. After the fifth process of impregnating the skin with the tannin has been completely carried out, the skin while still damp is thoroughly kneaded about with the hands or feet or thumped with a mallet ('hathelí') on both sides to make it quite soft. Oil is also applied to it for the same purpose. The seventh and last process is to salt preparatory to drying and storing. The skin is rubbed vigorously with salt and husk of rice ('phak') and then dried. When dry it is brushed over with a small brush ('poncha') made of 'munj' and then vigorously rubbed with a small wooden instrument (doí, hathelí). It is now completely tanned and ready for use whenever required. The skins in this state are generally kept rolled up in bundles until they are wanted.

Duration of tanning process—cost of materials used.

36. The whole process of tanning a buffalo or ox skin takes about fifteen days in the hot weather and about a month in the winter. But no exact time can be given as the length of the operations is dependent on various other causes, *e. g.*, the thickness of the skin, length of preliminary soaking required to get all the salt out of a salted skin, &c. The cost of materials, 'sajji,' lime, bark, salt, 'munj,' &c., for tanning 20 buffalo skins may be put roughly at about 4½ rupees to which must be added about Rs. 8 for labour. If one skin only were tanned the cost of materials would be about as follows:—'Sajji,' 2 sers, 3 annas; lime, 4 sers, 2 annas; flour, 3 sers, 4 annas; oil ¼ ser, one anna; 'kíkar' bark, 1 maund, Rs. 1-4-0. Total Rs. 1-14-0. The materials for 20 ox hides would only cost about half as much, as the skins are not so thick and the labour would be about 6½ rupees. These calculations, however, are of course of the roughest kind. It has been generally estimated in the reports sent in from the different districts that the average earnings of a tanner working on his own account come to about 4 annas per diem, while the wages of a leather-worker employed in a tannery would be slightly less. Tanners are, however, only able to work for nine months of the year. For about three months during the rains all tanning operations are necessarily at a standstill.

Tanning sheep and goat skins.

37. The method of tanning sheep and goat skins differs considerably from that already described for cattle hides. The first process is to work and rub the skins on the hairy side with salt or wood ash so as to loosen the roots of the hair. When this has been done the hair is removed with a wooden scraper ('khap'), or by a small iron instrument ('pankhara'), or with a piece of wood ('kuria') shaped like a lead pencil, the hairs being caught between it and the thumb and pulled out so. After the hair has been removed the skin is scraped with a potsherd ('tikrí') on both sides to clean it and is washed. A solution is then made as follows in which a number of skins (say 20) are treated at once. Two sers of flour of wheat or 'jowár,' or 'moth' (*Phaseolus aconitifolius*), or 'makkí' and 'moth' mixed are boiled in an iron caldron with ten sers water. This mixture is then put into a large earthen vat ('kún'). When cool, half a ser of salt and half a ser of the milk of the 'madár' or 'ak' plant (*Callotropis gigantia*) are added. The skins are frequently turned about and shaken in this solution and rubbed with it, and are allowed to soak in it altogether for from three to ten days according to the weather. They are then taken out and washed. Two sers of salt are then worked up with flour and water so as to form a paste which is now rubbed on the skins. There is no 'madár' juice in this paste. The skins are allowed to stay covered with this

paste for two or three days. After this they are washed and put in a fresh solution made up of the same ingredients, salt, flour and 'madár' juice, as the first one. Instead of this repeated solution, a new solution is sometimes made of powdered bark of 'jar berí' or 'jarí' (*Zizyphus nummularia*), a thorny bush. It is then washed in clean water and dried.

Dyeing.

38. Sheep and goat skins generally undergo an additional process to give them some particular colour. The most ordinary colour is red and the following is the process employed for this purpose. A mixture is made of the following ingredients in about the proportions given : lac, two sers ; bark of 'kíkar' (*Acacia arabica*) or 'lodhar' (*Symplocos paniculata*), one chiták ; 'sajji,' one chitak. These are boiled together in water and in the solution thus formed the skins are steeped for about two hours. They are then placed in a vat containing a mixture of pounded 'kíkar' bark and water and in this they are allowed to soak for a few days. They are then taken out and hung on lines to dry. Before they are quite dry they are taken down and again soaked in a fresh solution of 'kíkar' bark for a day or two. When the colour has thus been 'fixed', the skins are taken out, wrung and finally dried. Dyeing red is carried out by a somewhat different process in Kulu. Here the first thing is to rub into the skin a mixture of rice soaked in water. A further mixture of lac, soap and 'sarsáhí' is then rubbed in and left to dry. The skin is then finally anointed with apricot oil ('gulí') or mustard oil ('sarshaf') to keep it soft and pliable.

A black colour is obtained in Delhi by applying to the tanned skin a mixture composed of 'amla' (*Phyllanthus emblica*), 'halaila' (myrobolam), iron filings, sulphate of iron ('kasís'), gallnut ('májú'), onion and gum.

The cost of tanning 40 goat skins is given as follows by Mr. Baden-Powell for the leather manufacture of Núrpur :—

	Rs.	a.	p.
12 sers salt	1	4	0
13 sers barley meal	0	5	0
Two chitáks 'sajji'	0	0	3
'Lodar' bark and catechu	0	0	3
20 sers 'amaltás'	1	0	0
Total	2	9	6

The estimate given in one of the district reports now received for the cost of preparing 20 skins, including dyeing, is—

	Rs.	a.	p.
Flour	0	8	0
Salt	0	8	0
'Madár' juice	0	2	0
'Amaltás'	1	1	6
'Lodar'	0	0	3
'Sajji'	0	0	3
Lac	1	8	0
Total	3	12	0

Process of tanning donkey hides.

39. The process of tanning donkey hides into shagreen ('kímukht') is again different from either of those previously described. It is done principally in Pesháwar and to a small extent in Delhi, but in no other places in the Punjáb. The skin is first thoroughly wetted and then the hairs are removed with a scraper ('kharachna') and a dressing given by a small tool called 'dás.' The skin is then laid out on the ground and stretched tight on wooden pegs. 'Chína' (*Panicum miliaceum*) is spread over the skin while it is in this position and pressed into it with the feet, on the uppermost (or inner) side of the skin. The result of this is to give a granulated ('dánadár') surface to the other (or hairy) side of the skin. After this the dry corn is shaken out and the

hide dressed again with the 'dás' on the granulated surface so as to remove all coarseness. The skin is then boiled in water in which a little salt has been mixed. Care must be taken at this stage not to boil the skin for too long or it will be spoiled, becoming soft and tearing easily. The characteristic green colour is now given by a mixture of copper filings and chloride of ammonium ('naushádar'), which is applied to the inner surface of the skin and being absorbed sinks through and dyes the other or granulated surface. After dyeing the skin is placed to dry in straw ('phas') and is covered with a cloth to protect it from the sun and the wind. While drying, the skins have to be carefully turned every day. When quite dry the hide is rubbed with 'ghí' to soften it and put away. As a rule the whole skin of the animal cannot be made use of, only the skin of the hind parts being worth tanning. This process is more troublesome and expensive than that of making ordinary leather, and the cost of shagreen is a good deal higher in consequence. It is used chiefly for book-binding or for the uppers and borders of shoes.

Camel skins.

40. Camel skins, as has already been observed, are used in a practically raw state and do not undergo any regular process of tanning. The usual operations are to thoroughly soak the skin and scrape off the hair and flesh with an iron instrument called 'rachna.' The skins are then put in water thickened with mud and gum until they are as soft as wax. The fleshy side of the skin is then again scraped with a 'khurachna' and the skin in this sticky state is plastered on to moulds and left to dry hard on them in the manner described below with regard to the making of 'kuppás.' Almost the only articles made out of camel skin are 'kuppás,' scales of measures, drums and ropes. The men who work in camel hide are a distinct class known as 'dabgars.'

Curing fur-skins.

41. The method of curing a deer skin with the hair on is as follows:— It is first steeped in water for a day or two; then for a longer period of about a week in an earthen pan filled with a mixture of salt and 'jowár' flour with water. It then gets a second soaking for about a fortnight in a solution of 'kíkar' bark and water and the whole operation is over. Sometimes other substances besides 'kíkar' bark are included in the second 'bath.' In Hoshiárpur lac, some kind of acid, copper, sulphur and the leaves of the 'basoti' (*Colebrookia oppositifolia*) plant finely powdered are added. The method of curing bear and leopard skins is to rub on the inside a mixture of alum, barley and pomegranate rind, or of ashes, alum, lime and arsenic. They are then stretched to stakes on the ground and dried. In Kulu turmeric and milk are rubbed in finally to keep the skins soft.

Preparation of 'postíns' at Pesháwar.

42. The following is the description given in the Pesháwar Report of the method adopted there of preparing 'postíns' (coats made of skin with the fur left on). The skin is hung up by a nail on a post and the inside roughnesses are scraped off with a blunt knife, a good deal of force being used to get off all the superfluous fleshy and fatty matter. Salt is then put inside the skin which is dried and washed. Then a paste of the fine husk of rice ('phak') is applied to the inner surface and the skin is rolled up and left for about a day. It is then rewashed and again rubbed with the paste. This is done generally three times or until the skin is soft and pliable and all extraneous matters have been removed. It is then again washed and salted. When dry it is stretched out as tight as possible with the hands and beaten on a stone to remove all traces of the paste. The last operation is to rub with a cloth into the inner surface of the skins a paste made of pomegranate bark (about 2 chitáks), sweet oil ($\frac{1}{8}$ chiták), and cocoanut ($\frac{1}{4}$ chiták), mustard oil and water. After finally drying the skin the process is completed and the 'postín' is supposed to be thoroughly cured. The best 'postíns' are however brought from Kábul and Kandahár, those made locally being sold at a cheaper rate.

Gujrát leather and wash-leather.

43. In Mr. Baden-Powell's "Punjáb Manufactures" it is stated that "one or two men at Gujrát have the art of preparing goat and sheep skins into fine soft leather which in texture and

general appearance is hardly if at all inferior to European." The colours were generally dark green and claret colour or maroon. The former was produced either with indigo and turmeric or with an extracted dye stuff obtained by infusing pieces of brightly-dyed English cloth; the red was produced with the aid of lac. After the dye was applied, the dry skin was carefully polished with a bit of horn or cornelian fixed into a handle of clay. The Tahsíldár of Gujrát reports that one Umrá, the most famous maker of this leather, is now dead and either has not revealed the art of preparing it to any of his successors or they find they can get ready prepared soft leather of the kind used for the "Gujrát" chairs cheaper from Calcutta, and so have ceased to make it locally. The preparation of soft wash-leather, which is generally of a greenish buff colour, for gloves, breeches, socks, gaiters, &c., in the Kángra and Hoshiárpur districts has also been noticed by Mr. Baden-Powell and the reports now received do not add to his description of the methods employed. In the same way no more than a reference is needed to the highly esteemed red skins of Núrpur, the preparation of which is also described by him.

Drens and Sarnáís.

44. A very full and complete description is given in the same book of the making and management of 'drens' or 'floats' of inflated cattle skin used for crossing rivers, and 'sarnáís' or bags made of goat skins for holding water or grain. In addition to the points noted in Mr. Baden-Powell's description, some little further information has now been gathered. It appears to be the usual plan in preparing cattle hides for 'drens' to bury them in sand for 2 or 3 days or to turn them inside out into a bag and fill them with sand. The hair is then said to be easily removed, falling off when rubbed vigorously. The price of a 'dren' in districts where they are used is put at about Rs. 5, and of a 'sarnái' at Rs. 1-8. A 'sarnái' which is beginning to be worn out and will no longer hold water is often used as a bag for keeping or carrying flour, &c. A 'dren' on the other hand is too clumsy to be used in this way and when worn out is good for nothing but to patch up holes in 'drens' or other leather.

'Mashks.'

45. The following is a description of the method commonly employed in making the 'mashks' or mussocks used by water carriers ('bhístís'). The 'bhistí' buys a ready-cured goat skin from the Khatík tanner and doubles it lengthwise with the hair outside. He then cuts off the ragged edges with a small sharp steel instrument ('gainjan'). When he has got an even edge he sews it up all round with fine strips of leather and then stitches over that a broad band of leather overlapping the edges of the narrow strips on both sides. At the root of the forelegs and tail rings are put on, through which a broad band of leather is passed which is to go over the 'bhistí's' shoulder. Hot water and salt are poured into the skin which is shaken about, and this is continued till the skin becomes soft; the water is then poured out and the 'mashk' inflated and hung up to dry. The outer surface is gently scraped, so as to remove any remaining hairs or dye which had been used in curing the skin and to open out the pores. It is then rubbed on the outside with melted fat or oil, so as to render it quite water tight. After this it is filled with water and hung up, the water being changed daily till all smell of the grease and tanning is removed, when it is quite ready for use. A cured goat skin is worth from Rs. 1 to Rs. 1-8, and a made-up 'mashk' costs about Re. 1-8 to Rs. 2-8.

Small 'mashks.'

46. Small water-bags made in a similar way are used in many of the more arid parts of the Punjáb where the water for a long journey has to be taken with the traveller. 'Kohnís' are carried in this way by herdsmen and even by office peons in the Montgomery district, and also in the Salt Range, where they are called 'kunís.' In the Bárak Tappa Kohát they are known as 'mashkíza' or 'little mashk.' In Bannu they are called 'godáh' and used for either flour or water. If they are used for carrying water they are cleaned every two or three months by pouring in a decoction of 'balanja' root. These small bags like the leather grain receptacles commonly used in the hills, are commonly made by the agriculturists themselves and not by regular leather-workers.

Ornamental leather-work of Biláspur and other Hill States.

47. The ornamental leather-work of Biláspur and the neighbouring Hill States requires a separate notice. The articles made are generally of stout black leather lined with red leather; the surface is sometimes variegated with patterns of red, green and gilt leather, but the distinguishing feature is that the whole is embroidered over in a white pattern with narrow slips of the quill of the peacock and with white horse hair. The principal articles thus made are waist belts, ink stands ('qalmdán'), small rectangular and round boxes for gloves &c., cigar cases and horse trappings (head stall, crupper, reins). The work is very laborious, each hole for the reception of a piece of quill or horse hair being bored separately by a sort of gimlet. The leather is purposely kept very hard and stiff, as customers generally prefer a hard to a soft leather in these articles. This work is mostly done in the hill villages in the Kángra district and neighbourhood and brought into Simla for sale. Many years ago when it was first known large prices used to be obtained from Europeans for this fancy work, but now the things can be had very cheap indeed and the work is far from remunerative. A cigar case which is said to represent a week's work for one man costs only 8 to 12 annas, and a small round box which has taken 12 days to prepare fetches only Rs. 1-4 to Rs. 1-8. Many of the best workmen in the Native Hill States are said to be in the pay of the Rájás and employed solely on work for them in the way of ornamental horse trappings and similar articles.

Tools and instruments used in tanning and manufacture of leather articles.

48. The tools and instruments used in skinning and tanning are very few and simple. There is first the iron scrape-knife ('rambí,' 'rámpí,' 'khurpí,') for paring off the inner fleshy skin, and a smaller scraper of the same shape called 'dás'; a piece of pumice stone ('jhánwa') or a potsherd ('tikri') for scraping and smoothing the hairy side of the skin. For this in the Dera Ismail Khan district, a flat piece of iron, called 'chapprí,' is used. A coarse awl ('katární') and a brush ('kunchí munj,' 'ponchá') made of 'munj' grass for the final brushing and cleaning of the cured skin make up the sum total of his modest equipment. For the preparation of manufactured leather articles the Mochi requires a larger assortment of implements. First the slab of stone always in front of him on which he smooths out his leather and rests it for any rubbing or polishing which may be necessary. This is variously called 'sil,' 'patrí,' 'pattrí sil' and 'tarár.' Then he has a flat smooth piece of some soft kind of wood on which to cut his leather. This is the 'phallí,' 'pharárí,' 'phirhái,' 'takhtí.' He has also a wooden scraper or rubber of very much the same shape as an ordinary razor strop (called 'khabíra,' 'khabír,' 'kabíl,' 'beángra,' 'báongra,' 'wyáng,' 'biáng,' 'sitní') to smooth and soften the leather and to flatten out wrinkles caused by folding, &c. He, like the tanner, needs a bit of nitrified brick or potsherd for cleaning and rasping the leather before he begins working on it. Then he often keeps a 'singhí' or deer horn, generally let into a lump of clay or piece of wood for a handle, for putting a final polish to the leather. Other instruments used are a wooden 'dokhattí' for tracing double lines, a pair of compasses ('parkár'), forceps ('zambúr,' 'jambúr'), and clamp ('kilám,' 'chámp,' 'dhalíjná') for holding leather while being sewn. Then there is a wooden bottle-shaped mallet like a small Indian club ('kobá,' 'kubá,' 'mográ,' 'mogrí,' 'munglí,' 'muslí,' 'túlná,' 'kútní,' 'tápí,') used for beating down the stitches and hammering the seams flat. A small iron mallet ('sát') is sometimes used instead of the wooden one. A small piece of wood called 'kathiyár' or 'dhatní,' is also used for pressing down leather over the stitches. The Mochi also needs an iron scrape-knife for paring the leather, of a similar kind and known by the same name ('rambí,' 'khurpí,') as that used by the tanner. This instrument which is like a chisel, with a rounded convex cutting edge is also used for cutting leather and a smaller similar instrument with a flat edge is called a 'katní,' or 'nahná.' For making holes and sewing are the awls ('ár,' 'ál') of all sorts and sizes, including the special bodkin or bodkin-awl ('sutalí,' 'tákna,' 'tánkna,' 'kundí,' 'ár kundíwálá,' 'girih koshád') which carries through an end of thread at the same time that it pierces a hole for the stitch. Besides these are needles and scissors. Among other tools and implements, which are used specially in the making of shoes, are the last ('kálbut,' 'qálib') and in Dera Ismail Khán a smaller last about half the full

size of the shoe called 'uttar,' a wooden shoe extender ('pachar,' 'koterá') put inside the shoe to keep it stretched while being sewn, and a sort of shoe-horn ('shikanja') for getting the last into the shoe. A wedge ('dakka') is also sometimes used with the last and shoe-horn to keep the leather quite tightly stretched while working on it. The only tool peculiar to the 'siráj' or saddle-maker is a 'hathauri' or light iron hammer. Some of the instruments are known by different names in Kulu thus—

'Rambí'	is called	'Ghár.'
'Nahná'	,,	'Panhiár.'
'Kundí'	,,	'Satrárú.'

Making of leather articles. The native saddle.

49. The principal articles made of leather in the Punjáb are described in this and the succeeding paragraphs. Prepared leather, in the state in which it is bought and sold, has been, it must be remembered, only tanned; it has undergone no currying process. It is necessary to do something to prepare and soften such leather for the manufacture of articles. The native Mochi does no more than wash the leather and rub it with tallow or butter-milk or a mixture of curds and oil. It is then washed once again, scraped with a piece of pumice stone or nitrified brick and beaten with mallets to make it soft and pliant. These are the simple preparations which are the Indian leather-worker's only substitute for the elaborate operations of European currying, including the processes of shaving, rubbing with cod-oil, flattening by passing through a stoning machine and pendulum roller, stoning out on a table, dubbing with grease, and finally "sleeking" to make smooth and bring up a gloss.

The following is a brief description of the native saddle ('káthí') and its manufacture :—

A wooden tree ('hanna') is first prepared, made generally of 'ber' (*zizyphus jújuba*), mango, or 'lasura' (*Cordia myxa*) wood, and strips of raw hide are pasted over it. The leather used for this purpose is of the camel's skin, which is good for so little else. Saddle trees covered with leather are generally bought by the Mochi ready prepared. They cost from Rs. 1 to 2. The seat and flaps of the saddle are generally covered next with a 'khurgín' made either of a thick piece of felt or of two or three layers of cloth quilted, and over this as well as over the pommel and cantle dressed leather of cow or buffalo is nailed on with brass-mounted fancy nails. The seat of the saddle is narrow and the pommel and cantle are both very high, so that the rider is much cramped-up in position. The native saddle is being largely supplanted by English pattern saddles which are made in large quantities at Cawnpore, and cost only Rs. 8 or 9. The local 'siráj' cannot make a saddle of the same kind for less than Rs. 13 or 14, so it is impossible for him to compete with the cheap Cawnpore article. A native Extra Assistant Commissioner, writing about the native and English-pattern saddles, thinks that the native saddle will always retain its popularity among a large class of the people. He says: "It may be added to the credit of the country saddle that it is safer than the European. It has in the front a construction high and fit enough to come well in the catch of a horseman, thus affording him help in ascending and descending and serving as a safeguard in case of fear of fall. It has also a very high back part, large enough to serve as a support for the back and fit to come conveniently in the catch of a person, thus helping him in several ways."

The cost of a country saddle varies from Rs. 3 to Rs. 5. A country bridle costs from Rs. 1-8 to Rs. 2. It consists of a head stall ('púzí'), nose band ('nuqta'), reins (rás'), bit ('lagám'), and sometimes a martingale ('zerband'). The remaining portions of native saddlery are the stirrups and leathers ('rikáb' and 'rikáb diwál') and a crupper ('dumchí,' 'sákht'). Harness after the English pattern is very little made locally, as there is comparatively little demand and it can generally be got more cheaply from Cawnpore. The cost of brass-mounted harness with breast-band at the principal saddle maker's shop in Lahore is given at Rs. 30, with English reins Rs. 7 extra, with collar Rs. 3 extra.

'Huqqa.'

50. After shoes one of the most common and useful of all the articles made of leather in the Punjáb is the 'huqqa.' The bowl or middle piece ('dhol') is made of one piece of leather (generally buffalo hide). An opening is left at the top of the bowl of about 1½ inches in diameter into which is fitted a funnel-shaped mouth of wood or leather some inches long gradually widening out to a diameter of about four inches. Through this mouth the water is poured into the bowl of the 'huqqa.' In doubling round the leather for the bowl, a hole is also necessarily left at the bottom. Over this a second round piece of stout leather is sewn. The bowl is often ornamented on the outside with brass mountings or with strips of shagreen studded with silver nails. A 'huqqa' costs from 12 annas to Rs. 1-8 to make, and its sale price is from Rs. 1 to 2.

Cháguls.

51. The manufacture of 'cháguls,' or leather water bottles which were formerly made at many places in the Punjáb, has almost entirely died out. They used to be made in all sorts of shapes and sizes, some of the forms being not inartistic, others somewhat fantastic.

'Kuppás,' 'Kuppís'

52. 'Kuppás' or 'kuppís' are large leathern jars for holding oil or 'ghí.' They are made out of raw camel skin, as has been already noticed, by a special class of workmen called 'dabgars.' The method of manufacture is as follows:—The skin is prepared as has been explained by soaking in water mixed with mud and gum. When taken out of this mixture and while still wet and soft it is laid on to the outside of a clay mould ('sánchá') which has previously been prepared of the size and shape required. The skin is hammered round the mould so as to stick tight to it. Two or three layers of skin are generally put on the top of each other in this way, and in Hazára the outer layer of all is said to be generally of buffalo hide. The sticky fat and flesh which has previously been removed from the inside of the skin is made up into a sort of paste ('kútí') and is dabbed on to the outside of the mould to fill up any hole or weak part of the skins stretched round it. The whole is now simply left to dry; or in some cases it gets a washing of flour water first to clean it and is then left to dry. When quite dry and hard the clay mould inside is broken to pieces with a mallet and the bits taken out. The price of 'kuppás' varies from about annas 8 to Rs. 4. In some districts the price varies according to their cubical capacity, the rate in Sháhpur being Rs. 2 per maund of cubical contents. The making of these jars was once common, but it has now ceased altogether in many places and is fast dying out all over the Punjáb. Their place is being taken by the useful kerosine oil tin. 'Kuppás' and more especially the smaller kinds, called 'kuppís,' were often made in most fantastic shapes. Some were like jugs; others made very broad and flat with holes perforated right through, the edges of the holes being of course closed up so that the contents of the jar could not escape.

Scale-pans.

53. Another article which is commonly made out of camel skin is the scale-pan of balances, called 'palrá,' 'tarázú' or 'chábá,' and costing from four annas to one rupee. They are also made on a small clay mould ('sánchá'), the rims ('kinára') being sewn by hand over bamboo rings.

'Pakhál.'

54. The 'pakhál' is a large leather bag, or rather pair of bags, loaded one on each side of a bullock for carrying water. It is usually made of cow skin, one skin and a half being required. The skin is cut into three parts and then sewn up into a triangular sack. The value of a pair of these bags is from Rs. 4 to 8.

'Charsáb,' 'boká.'

55. The 'charsah' is a large bucket for drawing water from wells. It is of a circular shape having a large mouth at the top kept open by an iron ring fitted inside it and fastened all round by leather thongs passed through holes made in the leather round the mouth. This iron ring has iron cross bars passing through the centre, to which the rope of the bucket is fastened. The radius of the bucket varies from 7 to 12 'muthís' or from 28 to 48 inches, the idea being that it will hold as many maunds of water as there are 'muthís' in the radius. A 'charsah' costs from Rs. 1 to Rs. 4. Smaller buckets known as 'boka' or 'dol' cost from 8 annas to Rs. 1-4.

Bellows.

56. Bellows ('dhonkní,' 'dhanní,' 'jhallán') are made of goat skin prepared in very much the same way as for a 'sarnáí' or 'mashk.' The skin with all four legs left in is sewn up, wetted and filled with sand. Then dried in the sun and the sand shaken out and the bellows is ready as soon as two sticks have been put into the hind quarters for blowing purposes. These bellows cost annas 8 to Re. 1 single or Rs. 1-8 to Rs. 3 a pair.

Nosebag. Tobacco pouch.

57. The construction of the nosebag ('tobra') is very simple. A broad straight piece of leather is taken and doubled round in a curve; two narrow strips are then sewn so as to close up the sides and the bag is complete. They cost from 6 to 12 annas each.

A 'khalítá' is a small bag of goat-skin drawn tight at the top with string, and used in some districts as a tobacco pouch.

Leather cattle gear and miscellaneous articles.

58. A considerable number of articles made of leather are used in connection with cattle gear. One is the 'khopa' or cattle blinkers of conical shape worn on the eyes of bullocks and buffalos when working on the Persian wheel so as to prevent their becoming giddy. They are made by cutting two circles of leather about ten inches in diameter. A segment of about one-third of the circle is then cut out and the two pieces are stitched together. The edges of the base are folded inwards till they overlap and a sort of cone is thus formed. The edges are then sewn. Two of these cones are then joined by a forehead strap and a throat piece and the 'khopa' or pair of blinkers is ready. They cost from 8 to 12 annas a pair. 'Khosa' is the name given to leather mufflers used by cattle thieves for putting over the feet of cattle so as to obliterate the hoof marks and prevent a tracker from following up the trail of stolen cattle. They are made from the soft skin of the buttock of cows large enough to fold round the whole foot; string is let in through holes all round the edge and they are then turned up and drawn tight round the whole hoof just like a bag. It is not known how much is the cost price of these articles as they are only made use of by cattle-thieves in the way already described and no Mochí would confess to ever having made any. The 'dhalyára' or headstall for cattle is also made of leather and costs from 5 to 10 annas. Other leather articles connected with cattle are the whips, generally made of four strips of raw hide twisted together and waxed, and the 'nárá' or leather rope used for various purposes in connection with ploughs, &c. The rope is made by well soaking and salting a hide, which is then cut into strips which are then merely twisted round the trunk of a tree and left to dry. Waistbelts ('petí') are roughly made and cost from 8 to 10 annas. Other articles made are scabbards ('miyán'), barbers' tool cases ('guchhí,' 'rachaní') and leather sieves ('parún,' 'chhalní').

Soft leather leggings, &c.

59. The preparation of soft chamois leather for gaiters and socks in the Kángra and Hoshiárpur districts has been already referred to. Breeches made of this soft leather cost from Rs. 1-8 to Rs. 4, gaiters from 14 annas to Rs. 1-8 and socks 4 to 6 annas. Gaiters are also said to be made of calf's skin in the Gujránwála district at a cost of Rs. 1 to Rs. 1-4. Leather lockets or amulets ('táwíz') are also commonly made and sold for about 6 pies. Musical instruments, such as small drums ('daf,' 'dhol'), tambourines ('khanjrí') and kettledrums ('naqára,' 'tásha') are made by stretching tanned goat-skin over wooden frames. Leather is also used for covering boxes and baskets ('khárí'). Boxes so covered cost from Rs. 2-8 to Rs. 3-8 and baskets from Rs. 1-8 to Rs. 2-8. Charpoys made of raw hide in place of 'niwár' are also not unusual. These are often made by sweepers.

Leather industries of Pesháwar.

60. The following is a note written some years ago by Mr. Kipling, C.I.E., on the leather industries of Pesháwar, apart from the making of shoes:—

"The elaborate belts ('kamr khísa') worn throughout the Deraját Division, with neatly made powder flasks, bullet cases, flint and steel pouches, all attached, as Mr. Baden-Powell remarks, after the fashion of a lady's chatelaine, are the characteristic article of the Pesháwar 'postín doz.' The powder flask is shaped like a retort, with a curved neck, sometimes in the moulded 'khopa' or leather paste in which 'ghi' bottles are made, prettily finished and engraved, and more usually of embossed leather sewn in segments. This is perhaps the only example of leather embossing, excepting an occasional sword-

sheath, now practised. The belt proper is in buff leather with elaborate buckles and brass fittings. Embroidery in silk is applied sometimes directly on the leather as in the 'postín,' but the flaps of pouches are often fitted with a piece of cotton cloth covered with fine silk embroidery in various colours. Bullet belts, with rows of bamboo tubes neatly wrought with embroidery, like those worn by the Kurds are also made. The frontier belt, indeed, may be followed westward with slight variations, through Central Asia as far as the Caucasus. The 'postín doz' also makes 'yakdáns,' bottle cases, pocket-books, and the 'chág gún' or water-bottle which is found in all camel-riding countries. His trade, it will be seen, is in fact in his own estimation different from that of the 'Mochi'; and he never touches shoes. The work is carried on in houses in the alleys and side streets of the town, and there is a larger production than might be suspected from the aspect of the bazaars, where it is represented by another person altogether, the dealer, a shopkeeper known as 'khurda farosh,' whose interest it is to represent the 'postíns' he sells as of foreign manufacture. Trunks and portmanteaus seem to be the only objects of European use produced."

PART III.

SHOES.

Making of shoes.

61. The following very full and minute description of the method of making shoes is taken from a report on the leather manufactures of the Sháhpur district:—

"The leather used for shoes is generally buffalo's and bullock's, goat skin being also used for parts. When these hides are dear, dishonest workmen use camel's or horse's hides. The soles consist either wholly of buffalo leather, or partly of buffalo, partly of bullock, or wholly of bullock, according to the class of shoe. The buffalo leather is thickest and strongest and is consequently used alone in the Bár and Thal, while the light bullock-skin soles are only worn in the towns by the better classes. There are three divisions of the shoe from front to back, the portion over the toe 'panja,' the sides 'pakh,' and the heel 'addí.'

"The tops consist only of bullock leather. A Mochi begins work by cutting out the tops, consisting of three pieces at least, the outer called 'panna,' the inside piece called 'báhin' which runs only from the heel to the ball of the big toe, and a thin piece of old leather called 'puran' which is put between them.

"Some Mochís add a thin piece of 'cow's' leather as a sort of continuation to the báhin'; this is called the "pab."

These are then stuck together with 'khal kí leí" or paste of oilseed cake ('táramíra,' *Sinapis eruca*) and the 'panna' is rubbed with oil made from the flower of the 'tun' (*Cedrela toona*). Some time turmeric ('haldí') is mixed with the 'tun.' Or the upper is rubbed with pomegranate skin ('naspál') finely powdered and alum, which gives it a bright yellow colour. If other colours are required aniline dyes are used. As the finishing touch the outside of the 'panna' is sometimes polished with coarse unwoven cloth ('parola'). This is then embroidered if necessary. Bár and Thal shoes have, as a rule, no embroidery. The next class generally have a small circle embroidered over the instep either in copper wire or in coloured silk. This is called the 'chala.' The best class of shoe have a much larger patch of embroidery and sometimes the edge of the tops has a broad band of embroidery; silver wire is sometimes used for this. These are called "buti" and "wel."

"The tops, the Parts of which are known collectively as 'panna,' are then sown together round the inside, a strip of red goat skin or sheep skin being used as binding; this is called the 'zeh or zehn.'

"The sole consists of two and sometimes three pieces, the outside being the 'tala,' and the inside the 'wana'; if a third piece is used it is called 'tala' also.

"The heel ('addí') has an extra piece of leather sown on; if this covers the whole heel it is called 'chátí," if it only goes round the outside it is called 'ghorísambí'.

"The soles are sewn on to the tops with several strands of coarse cotton called 'dor.' The sewing begins at the toe and is brought down both sides of the shoe evenly to the heel, which is then sewn together, a strip of old leather being let in called 'gausa.' The seam outside the heel is called 'guna.'

"The long points at the end of the toe, over the instep, and at the heel are then sewn on; the former is called 'nok' and the last two are called 'bundí' or 'chautí.' The value of the materials for an ordinary pair of shoes is from 6 to 12 annas. They take at least one day of twelve hours to make, and sell for from 10 annas to one rupee. The better class of shoe without embroidery cost about twelve annas to make, and sell for a rupee, but the embroidering is paid for in proportion to the value of the wire put in, *i.e.*, a pair of shoes ordinary value ready made one rupee, value of wire eight annas, labour in embroidering eight annas, total selling price two rupees. Two rupees seems to be the maximum price given for a pair of shoes made in this district, though a few shoes are imported from the Jhelum district which fetch as high a price as five rupees a pair. Ordinary embroidery such as the 'bhala' is done by boys, who learn the work by first watching their elders; they are then allowed to do the common embroidery; when they are pretty skilful at that, they are given some of the sewing to do. Lastly they learn the cutting out, as this is the most important part of the Mochís' work, his profits depending largely on his skill in cutting out a large number of shoes from one skin. An experienced man will make an average of 12 pairs of shoes per skin. The ordinary shoes wear for about six months; a pair from the Bár for a year."

Leather sandals.

62. The following account of the making of leather sandals ('kherá,' 'chaplí') is extracted from the same report:—

"'Khere' are made generally of partly buffalo and partly bullock leather; sometimes, however, they are made entirely of bullock leather.

"The upper sole 'wana' is first cut out; this is then stuck on to the thicker leather used for the lower sole 'tala' with 'leh' and that is cut out; sometimes two 'talas' are given in which case the upper one is of the same kind of leather as the 'wana.'

"The heel is cut a good deal broader than the size required. Then beginning at the instep the sole is sewn round to the other instep. The real heel is then sewn round, after which a seam is sewn up the middle. (Beginners sew up the middle first). The edges are then pared off with the 'rambí' so as to form a slope outwards from the top of the 'wana' to the bottom of the 'tala.' The spare leather at the heel is split up as far as the instep and divided at the heel. Two strips of thin cow's leather are then cut out to form the toe piece ('kanár') and instep piece ('wadr'); these are fastened together by a narrow strip called 'birí,' which is ornamented with coloured silks which are wrapped round the leather sewing, or else the sewing is done in red leather.

"Then the 'kanár' is sewn with raw hide thread (taken from the buttocks of a cow called 'sálú') on to the soles, one fastening being at the ball of the big toe and the other just behind the little toe. Another thin strip of leather is cut out to form the heel strap or 'pichár.' The superfluous strips of the heel piece are then pared down a little, and two slits about three-fourths of an inch long are cut in them, one close by where they join the sole, the other about an inch and a half from their point. They are then turned over and the instep piece ('wadr') and the heel piece ('pichár') are each passed through one slit and back through the other thus forming a sort of clove hitch. The point of the heel piece is then sewn down to the sole with 'sálú' forming the 'gita'. Provided the sole and toe piece are the right size, the 'kherí' can be adjusted to fit any foot by undoing the loop of the instep piece and either tightening or loosening it.

"The last piece put on is the 'natha' or thin strip of leather which passes through the sole by the big toe and is fastened on to the toe piece in continuation to the 'birí.' In wearing the 'kherí,' this passes between the big and second toes.

"Two men can make a pair of 'kherí' in a day with ease or three pairs in two days. The materials cost five to ten annas, and the manufactured article if sold fetches from ten annas to a rupee."

Shoes. General remarks.

63. With the exception of the coarse rough kinds, such as the 'bágrí' shoe, which are only worn by agriculturists, shoes besides being of various special shapes and forms are ordinarily divided into three classes according to the amount of ornamentation upon them. Some are quite plain and called 'sáda'; others are partially ornamented over the toes and round the sides; these are known as 'ded háshiya' or 'derh háshiya' 'one-and-a-half margin' so called because the ornamental work is supposed to go round three-quarters of the way on each side of the shoe. Those which are completely covered with embroidery work are called 'kámdár.' The price of a pair of shoes varies from 8 to 12 annas, which may be taken as the price of an ordinary pair for hard rough use or 1 rupee for a slightly better pair, to as much as 5 or 10 rupees for a fully embroidered pair. The ornamental work consists of embroidery with gold and silver thread, 'kalábátún' (a body of silk overwound with a thin flattened wire of gold or silver), spangles ('sitára'), beads and green beetle's wings. Women are commonly employed on this work, which is the only part of a Mochí's work, except the lighter part of the sewing of shoe uppers, in which they can assist. On the frontier and perhaps elsewhere it appears to be the custom for Mochís to give out this embroidery to be done by women, not necessarily of the Mochí caste at all. They are paid as wages a sum equivalent to the value of the embroidery used. It is stated that formerly good Russian gold thread 'tilá' valued at Rs. 1-12 per tola was used, but that what is now commonly employed is cheap 'tilá' worth 10 or 14 annas a tola only, which comes from Amritsar or Lahore. Shoes heavily ornamented are not as a rule kept in stock, except in larger towns, but are made to order. It is a common custom for the person ordering a pair to be made to give an advance to the Mochí, the rest of the price to be paid on delivery. In Ferozepore the usual advance is 4 annas which is reckoned to be half the cost of the leather used. The

average life of a strongly made shoe appears to be from six to nine months, or with careful patching one year, while thinner shoes last only four to six months. The European or pseudo-European patent-leather shoe generally goes after only three or four months' wear.

Different kinds of shoes—'Salem Sháhí.'

64. In describing the peculiarities of the different kinds of shoes it will be necessary to use a few special expressions for particular portions of the shoe. It is common for native shoes to have a tag of leather, small or large, standing upright or curved back over the foot, projecting from the end of the toe. This is called the 'nok.' A somewhat similar tag or rosette projecting from the upper point of the portion of the shoe over the instep is known as a 'chautí,' and a similar name is given to this sort of tag when there is one on the upper part of the heel. The portion of the shoe covering the toes is called the 'panja.' One of the most distinctive forms of shoe is the "Salem Sháhí." These shoes are made principally in Delhi and in the south-eastern Punjáb, but they are worn all over the Province. The toe curves gracefully into a point and there is a small 'nok' bent back over the foot. One peculiarity consists in there being no 'chauti' on the instep. It is apparently the fashion for all kinds of shoes made at Delhi to be without a 'chauti' there. Even the 'gol panja' shoes made here are without it, though the same kind of shoe in other parts of the Province generally has it. Thus the 'Salem Sháhí' shoe, as the special product of Delhi, has taken the absence of a 'chautí' over the instep as one of its peculiar characteristics. These shoes may be either of the three kinds, plain or partly or wholly embroidered. They are worn principally by persons in towns and by the well-to-do classes.

The 'Dihliwál.'

65. The next shoe is the 'Dihliwál' or Delhi-made shoe. This has a more rounded toe than the 'Salem Sháhí' and a rather broader 'nok' also turned backwards. It also differs from other Punjáb shoes in having no 'chautí' on the instep.

'Punjábí,' 'gol panja,' *'gánwárú.'*

66. We next come to the 'Punjábí,' or ordinary shoe of the Province, made principally in Hoshiárpur, Lahore, Amritsar and *Kasúr. It may be either pointed in shape like the 'Salem Sháhí' or rather rounder like the* 'Dehliwál,' or with a very broad round toe and a short thick 'nok' curled back, in which latter case it is called 'gol panja' ('rounded toe-part'). The portion over the toes extends in some shoes to the middle of the foot, these are called 'bará panja'; the others, where the shoe only covers a small bit of the toes, are called 'chotá panja.' Shoes of 12 fingers in length are known as 'bárhwán,' of 13 fingers as 'terhwán', and so on, 'chaudhwán,' 'pandarwán,' 'solhwán.' In the case of the three kinds of shoes which have now been mentioned, the 'Salem Sháhí,' the 'Dehliwál,' and the Punjábí, those worn by the females have generally either no heel or a very low heel compared to the men's, the side leathers also sloping downwards and becoming narrower from the instep to the heel. There is an exception in the case of Punjábí shoes worn by Mussalmán ladies of high family and by prostitutes, which have high heels like men's shoes though they are of much more delicate make. The women's shoes are called "panní" in Ludhiána.

The 'Pesháwarí.'

67. The next kind of shoe is the 'Pesháwarí.' It has a rather pointed toe, the characteristic of which is a very long broad 'nok' which stands up almost perpendicularly, being only curved back slightly at the tip instead of being bent back and resting on the shoe as in the other kinds already described. It has also a longish 'chautí' on the instep and the upper back leather of the heel is carried up high and into a point. The last used by the Pesháwar Mochís to make these shoes is peculiar; it is in three main pieces like a European boot-tree, but the peculiarity is in the toe-piece which is in two portions, the lower one having a groove cut into it in which the curved point portion fits.

68. 'Kashmírí' shoes are very similar to the 'Pesháwarí' ones. They also have a long 'nok' which rises perpendicularly from the toe and is then curved back so that the point again touches the toe portion of the shoe. They have a 'chautí' on the instep and a high heel behind going up into a point. They are also made in Pesháwar in some quantities.

'Kashmírí.'

69. The next class of shoe is the 'Pothwár' or 'Pothauri.' The peculiarity of these consists in the 'nok' which is very broad at the base and turned back right over the foot reaching even beyond the 'panja' and back over the instep gradually curling into a point; as a native described it "a 'nok' like a jackal's tail." They are worn in the north-eastern parts of the Punjáb, and particularly by the well-to-do classes in towns.

'Pothaurí.'

70. The 'Bágrí' shoe is a thick clumsy shoe with a broad toe and of a very heavy make. In shape it is very much the same as the ordinary Punjábí shoe, having a small 'nok' and a 'chautí' over the instep. It is worn by 'Bágrís' and lasts a long time before being worn out. A pair costs about Rs. 1 or 1-4.

'Bágrí.'

71. The 'Ráthí' is a shoe worn by Ráthís, Pachádas and others, who have come from Trans-Sutlej States. In shape it is something like the Pesháwarí, having a thick long 'nok' and a high heel; but the toe is broad and round of the 'gol panja' shape. They last out some 6 months' wear and cost about Rs. 1-8 a pair.

'Ráthí.'

72. The 'ghetta' or 'ghetla' is a female shoe made in Delhi an illustration of which is given in Mr. Baden-Powell's "Punjab Manufactures." It has no heel and the toe is curved right back over the centre of the instep. They are worn only by Muhammadan women and are often very richly ornamented.

'Ghetta.'

73. The 'justa' is a shoe made in Pesháwar and worn largely by Kashmírís. It has a high heel in the ordinary sense (though heelless in the sense of having no leather up the back of the heel) and is generally lined with green leather having its centre embroidered with silk or else quite simple. An illustration is given of it by Mr. Baden-Powell as "Pesháwar and also Kashmír shoes of green leather." These shoes cost from 12 annas to Rs. 1-8 according to the amount of ornamental work contained in them. Another Pesháwar shoe is the 'dhauncha' which is in shape something like the 'Pothaurí' shoe and has embroidery work with, generally, a rosette of frayed silk over the toe.

'Justa,'—'Dhauncha.'

74. The 'kaffpai' (Delhi) or 'kaunsh' (Pesháwar) is just a heeless slipper. The portion over the toes extends to nearly the middle of the foot and ends off there with or without a 'chauti' according as it is made in Pesháwar or Delhi. The 'jútá or 'paeposh' is a broad comfortable boot, the upper portion from the instep lacing round the ankle.

'Kaffpai' and 'paeposh'.

75. The 'gurgábí' (also known as 'mundá' in Gurgáon and 'mundlá' in Amballa) is copied from the shape of the English Oxford shoe. It is made in brown or black leather has a well-marked heel like an English shoe; and is generally adorned with a buckle over the instep. It does not lace or open over the instep It is worn commonly by peons, constables and the official class who are brought much into contact with Europeans. These shoes are imported into the Punjáb largely from Saháranpur, Meerut, Cawnpore and Calcutta They cost from Re. 1 to Rs. 2 per pair, but do not last so long as the regular native shoes.

'Gurgábí.'

76. There are also several variations of the native or half-native half-European shoe which may be worth a passing notice 'Ultauní' or 'ultáwan' is the name given to a native shoe of the Punjábí shape which has an extra 'upper' of red goat's skin folded over ('ultá') and stitched along the inside of the sides of the shoe. Shoes

Minor varieties of shoes.

which have a well-marked hem ('magzí') (often made of a separate piece of leather) running along the top of the sides are called 'magzídár.'. 'Bachídár' shoes have gold thread on the toes and heels and canvas sides; 'banáti' shoes have canvas instead of leather tops. 'Chautídár' is a general name given to shoes which have tags ('chautís') on the heel, toe, or over the instep.

Sandals and pattens.

77. On the frontier leather and grass sandals ('chaplí,' 'kherí') are ordinarily worn by Patháns instead of shoes. Descriptions and illustrations of them have been given by Mr. Baden-Powell. Men's 'chaplís' differ from women's in having a strap round the heel. Mention may also be made of the wooden pattens ('kharáwán') worn by fakírs. They consist of a flat thick sole of wood with cross-bars under the ball of the foot and the heel. They are kept on by a peg with a button at the top which comes up between the big toe and the second toe and by a leather strap over the instep.

Technical terms of the trade in the vernacular.

78. The vernacular terminology of leather working is very scanty. The names of the different classes of leather-workers have already been given in Part I. The following are some of the vernacular expressions used to describe the various processes, in addition to the ordinary Urdu words used for washing, scraping, manufacturing and the like,—

To tan leather	Chamrá (cham) rangná.
To skin	Chamrá udherná, chamrá chhílná, khal labná, and on the frontier spináwul.
To cut leather with the 'rambí' ...	Thapná, muchhná.
To mend shoes	Jútá gándná.
A cobbler	Khosregadh, or on the frontier kuhnadoz.
To embroider shoes	Tilá kadná, sarda karná.
Softening with mallet	Limbáwat.
To smooth down with the 'wiáng' ...	Chhíkná.
To put folds of skin on the 'kuppá' mould.	Puz charháná.

LAHORE :
Dated 1st April 1893.

ARTHUR J. GRANT, C.S.,
Jr. Secy. to Finl. Commrs. Punjab.

APPENDIX A.

Glossary of Terms used in the Shahpur District.

ADDÍ ... Heel of a shoe.
ADHAURÍ ... A half skin.
AK ... Giant swallow wort (*Asclepias gigantea*).
ÁR ... A shoe-maker's awl.
BABRI ... Broken potsherd.
BÁHIN. ... The inside piece of the top of a shoe.
BER ... The lotus tree (*Zizyphus jujuba*).
BIRI ... A small strip of leather used in sandals.
BUK ... A double handful.
BÚTÍ ... Embroidery on a shoe.
BÚNDÍ ... Points at the heel and over the instep of a shoe.
CHHAJ ... A measure. The length of a man's forearm square.
CHARSÁ ... A well bucket.
CHALA ... Small embroidery on a shoe.
CHATI ... Heel piece of a shoe.
CHILMARDÁ ... Seat of a saddle.
CHHITR ... A shoe.
CHITI .. A wooden rest used in shoe making.
DABGAR ... A maker of leather jar.
DAFKAIN ... Sides of the saddle tree.
DOR ... Cotton thread.
DUMCHÍ ... Crupper.
DUWÁL ZÁMAN ... Secondary stirrup leather.
FARÁKI .. Leather girth.
GHORI SUMBI ... Heel piece of a shoe.
GÁNSÁ ... Strip of leather let into the inside of the heel.
HANNÁ ... Saddle tree.
KHAL ... Goat skin.
KALBÚT ... A mould, also a boot tree.
KUNÁL ... A large earthenware basin.
KANÁR ... Toe piece of a sandal.
KARI ... Iron rings of a saddle.
KÁRCHOBI ... Ornamented shoes.
KAUNSH ... Slipper.
KATANI ... Embroidering needle.
KHATÍK ... Hindu class of Mochís.
KHOPÁ ... Blinker for well bullock.
KHÓSÁ ... Mufflers for feet of cattle.
KHOSRÁ ... An old shoe.
KHURGÍN ... Saddle cloth or namdah.
KIKAR ... Acacia.
KUNDI ... Embroidering needle.
KÚNÍ ... A small goat-skin water bag.
KUPPÁ ... Large leather jar.
KUPPÍ ... Small do.
KURIA ... A scraping knife used by the Khatiks.
LAP ... A single handful.
LEH ... Paste made of flour and water.
LITR ... Shoe.
MAD ... Lime and water.
MALNÍ ... A period of the tanning process.
MAGHZÁ ... Binding with leather.
MESHÁ ... Sheep skin.
MUNGALI ... A wooden mallet.
NALÁ ... The tube by which a sarnái is inflated.
NATH ... A thin strip of leather on the sandal which passed between the big toe and the second toe.
NOK ... The long point at the toe of a shoe.
ODHÁ ... The leather part of the under-girth of a saddle.
PAR ... A piece of leather put inside the toe of a shoe to strengthen it.
PANÁ ... Outer top of a shoe.
PANKÁH ... Saddle flap.
PAOLÁ ... A shoe.
PHALÍ ... The same as 'chiti.'
PICHÁR ... The back strap of a sandal.
PICHLÁ KOCH ... Cantle of a saddle.
PUSHTANG ... Leather to which the lower girth is attached.
PURAN ... The middle piece of leather of the top of a shoe.
RANG ... Tan.
SÁBAT CHAMRÁ ... A whole skin.
SÁDI JÚTÍ ... Unornamented shoes.
SÁKHAT ... Crupper.
SÁLU ... Untanned leather thread.
SARNÁI ... A goat-skin float.
SEHNAK ... Earthen dish (shallow).
SEPI ... System of payment in kind.
SHIKANJÁ ... Shoe horn.
SIL ... A flat stone used by shoe-makers.
TALÁ ... The sole of a shoe.
TARÁZU ... Leather scales.
TILLADÁR ... Gilt wire ornamentation.
TOPI ... Pommel of a saddle.
TRIKALI ... Tripod used in tanning.
TUNN ... *Cedrela Toona*.
TURSÁ ... Mixture of tan and water.
UKHÁR ... Tamarisk tree, *Tamarix indica*.
VYÁNG ... A wooden chisel.
WADR ... Instep piece of a sandal.
WANA ... Upper sole.
WARRI ... Cord fastening the water pots of a Persian-wheel, used as a measure.
WEL ... Embroidered border to a shoe.
ZÁMAN ... Stirrup leather
ZEH or ZEHN ... Binding of the top of a shoe.

APPENDIX B.

Table showing cost of some articles of leather manufacture in the Hissár, Hoshiárpur, Jullundur, Jhang, Montgomery, Gurdáspur, Gujrát and Dera Gházi Khán Districts. The figures are very imperfect, but are all that could be got from the District Reports.

	Prices.							
	Hissár.	Hoshiárpur.	Jullundur.	Jhang.	Montgomery.	Gurdáspur.	Gujrát.	D. G. Khán.
Reins	...	0 8 0	...	...	...	...	...	0 10 0 to 1 8 0
Stirrup leathers	...	1 8 0	...	..	...	...	...	1 2 0 to 2 8 0
Nuktá	...	...	0 12 0	...	...	0 10 0 to 0 14 0	...	...
Tobrá	...	1 4 0	0 12 0	...	...	0 12 0 to 1 0 0	...	...
Nárá	0 4 6	...	0 8 0	...	...	0 8 0 to 0 10 0	...	...
Petí	...	...	0 7 0	...	...	...	...	0 4 0 to 1 0 0
Káthí (native saddle)	*16 0 0	...	5 5 6	13 0 0	...	1 4 0 to 9 0 0	...	...
Huqqá	1 0 0 to 2 4 0	...	1 0 0 to 1 6 6	1 0 0 to 2 0 0	1 4 0	...	0 12 0	...
Khopá	...	0 4 0	...	0 6 0 to 0 8 0	0 8 0	...	0 5 0	1 4 0 to 1 12 0
Chagál	...	...	...	...	...	...	...	1 0 0
Kuppá	1 8 0 to 12 13 4	...	...	10 0 0	4 0 0	0 5 0 to 12 0 0	10 0 0	...
Kuppí	...	0 3 0 to 1 11 0	0 11 3	...	...	...	0 4 0	...
Palrá, chába (scale dishes)	0 10 0 to 1 8 0	0 6 0 to 0 10 0	0 6 9	...	0 12 0	0 10 0 to 0 12 0	0 8 0	...
Charsáh, charas	6 0 0 to 9 8 0	...	5 0 0	...	...	...	...	...
Beká	...	...	0 5 6	4 4 0	...	0 10 0 to 0 12 0	...	...
Pakhál	6 0 0 to 8 8 0	...	...	...	...	...	...	...
Bellows	...	...	2 13 6	3 0 0 to 5 0 0	...	1 4 0 to 2 0 0	...	...
Juchhi, rachiani (barber's case)	...	2 0 0	1 0 0	...	...	...	...	...

* Includes the price of harness.

LIST OF ILLUSTRATIONS.

PLATE I.

Figure 1 ... ... Rambí, large.
„ 2 ... ... „ small.
„ 3 ... ... Munglí.
„ 4 ... ... Wyáng.
„ 5 ... ... Kalbút.
„ 6 ... ... Kuppá.
„ 7 ... ... Kuppí.
„ 8 ... ... Charsah.
„ 9 ... ... Pakhál.
„ 10 ... ... Mashk.

PLATE II.—SHOES.

Figure 1 ... ... Panna.
„ 2 ... ... Talla.
„ 3 ... ... Male salem sháhí (kámdár).
„ 4 ... ... Ordinary female shoe.
„ 5 ... ... Shoe worn by females of high Musalmán families and prostitutes.
„ 6 ... ... Golpanja, ordinary.
„ 7 ... ... Golpanja for rough wear.
„ 8 ... ... Pesháwarí.
„ 9 ... ... Pothwár.
„ 10 ... ... Ghetta.
„ 11 ... ... Koff-pái.
„ 12 ... ... Chaplí.

PLATE I

FIGURE 1

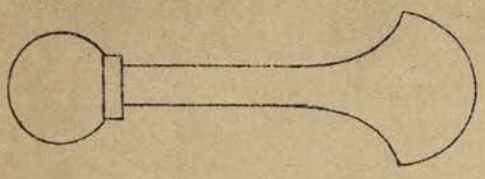


FIGURE 2

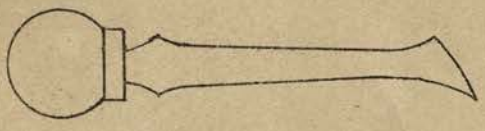
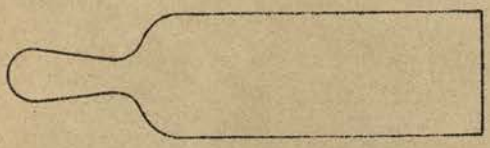


FIGURE 3



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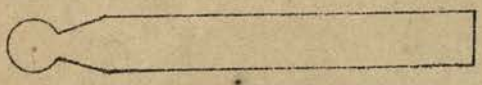
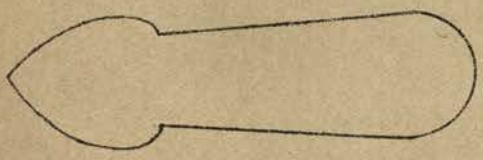


FIGURE 5



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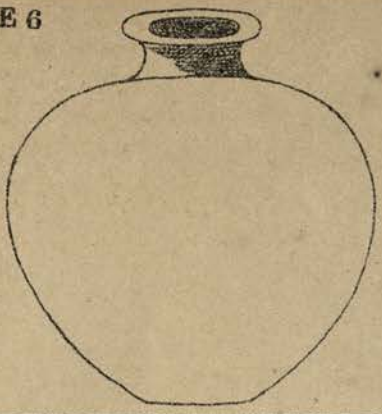

FIGURE 7

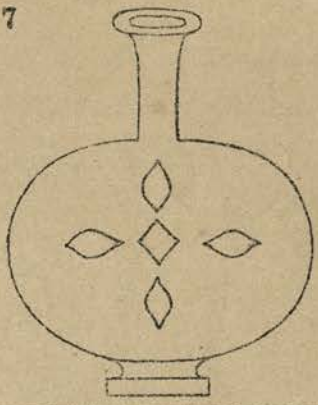

FIGURE 8

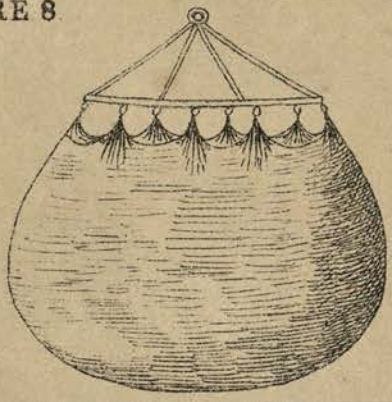

FIGURE 9

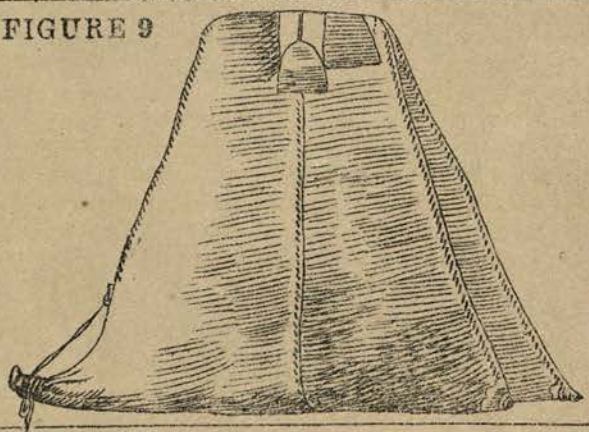

FIGURE 10

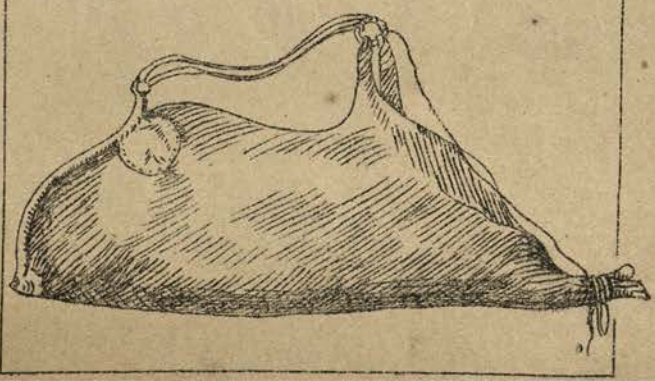

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PLATE II

FIGURE 1

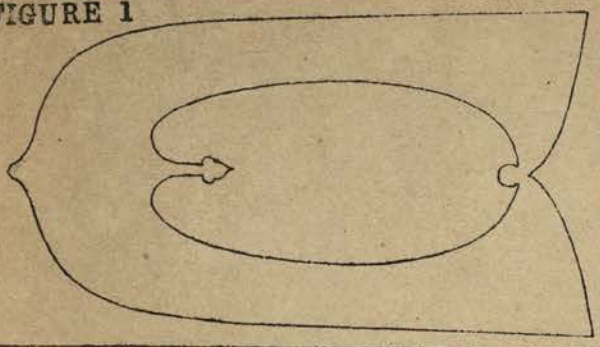

FIGURE 7

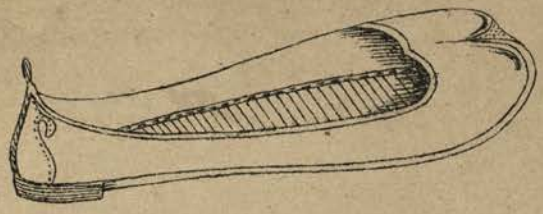

FIGURE 2

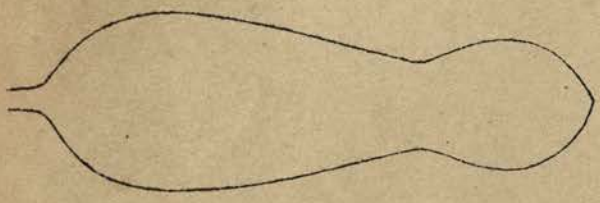

FIGURE 8

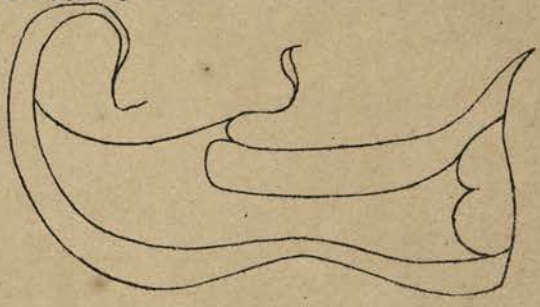

FIGURE 3

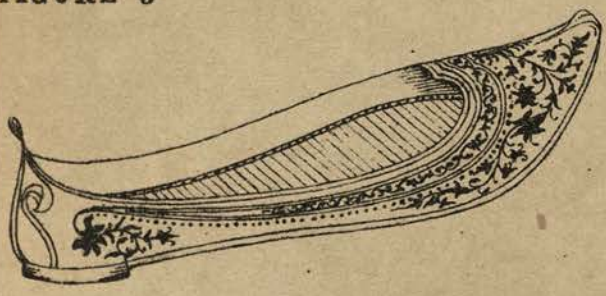

FIGURE 9

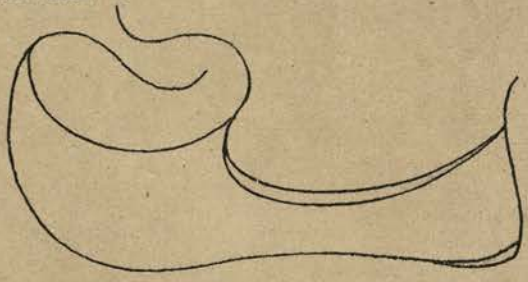

FIGURE 4

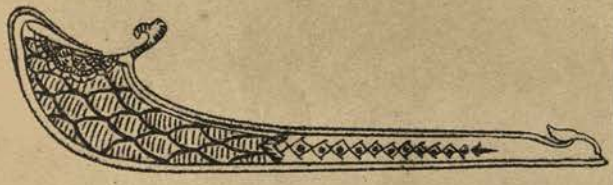

FIGURE 10

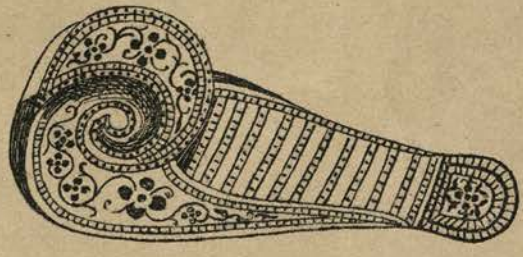

FIGURE 5

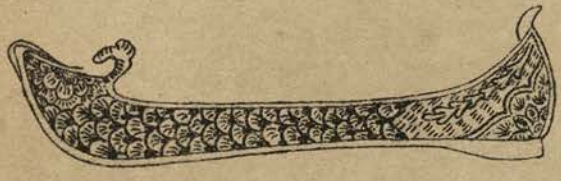

FIGURE 11

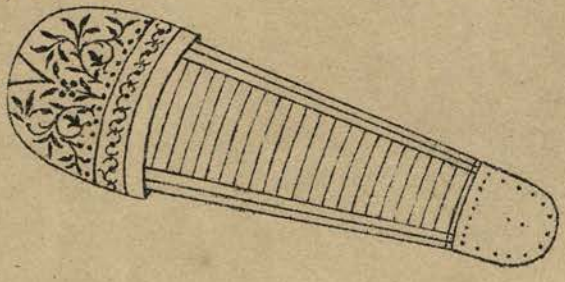

FIGURE 6

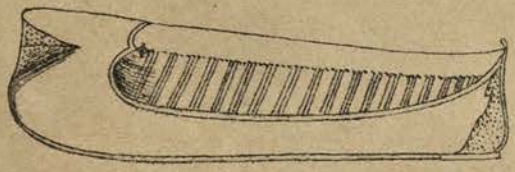

FIGURE 12